

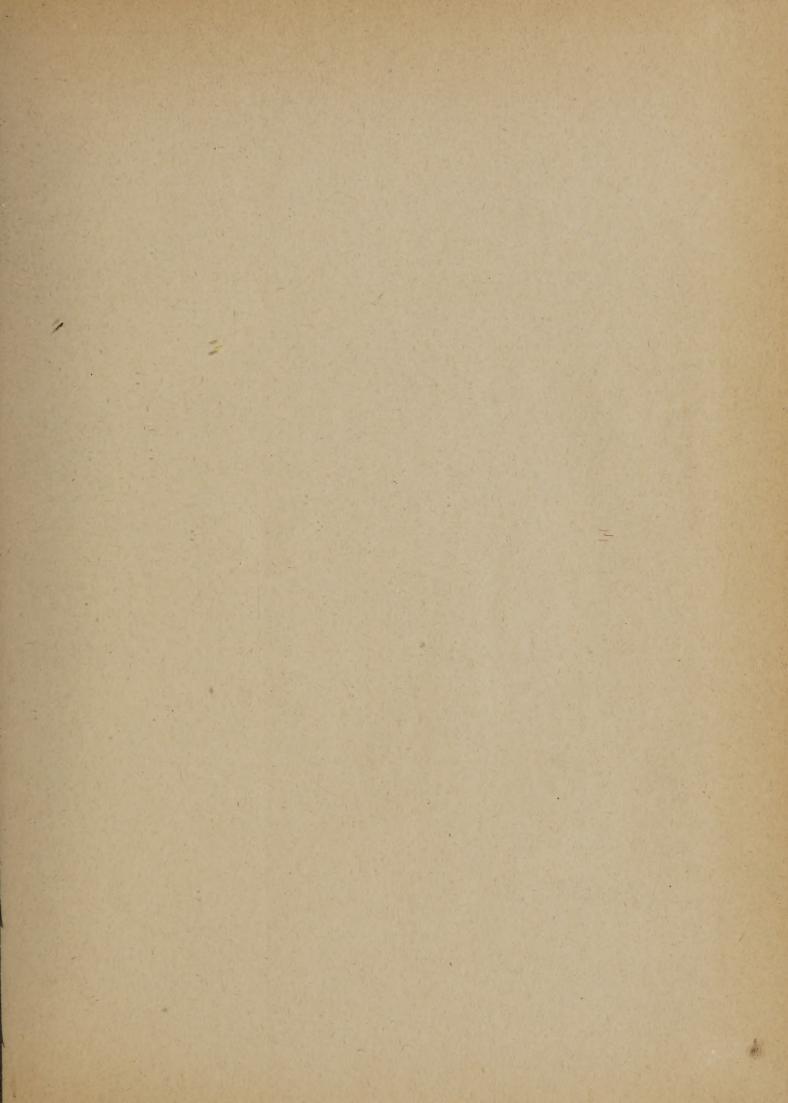
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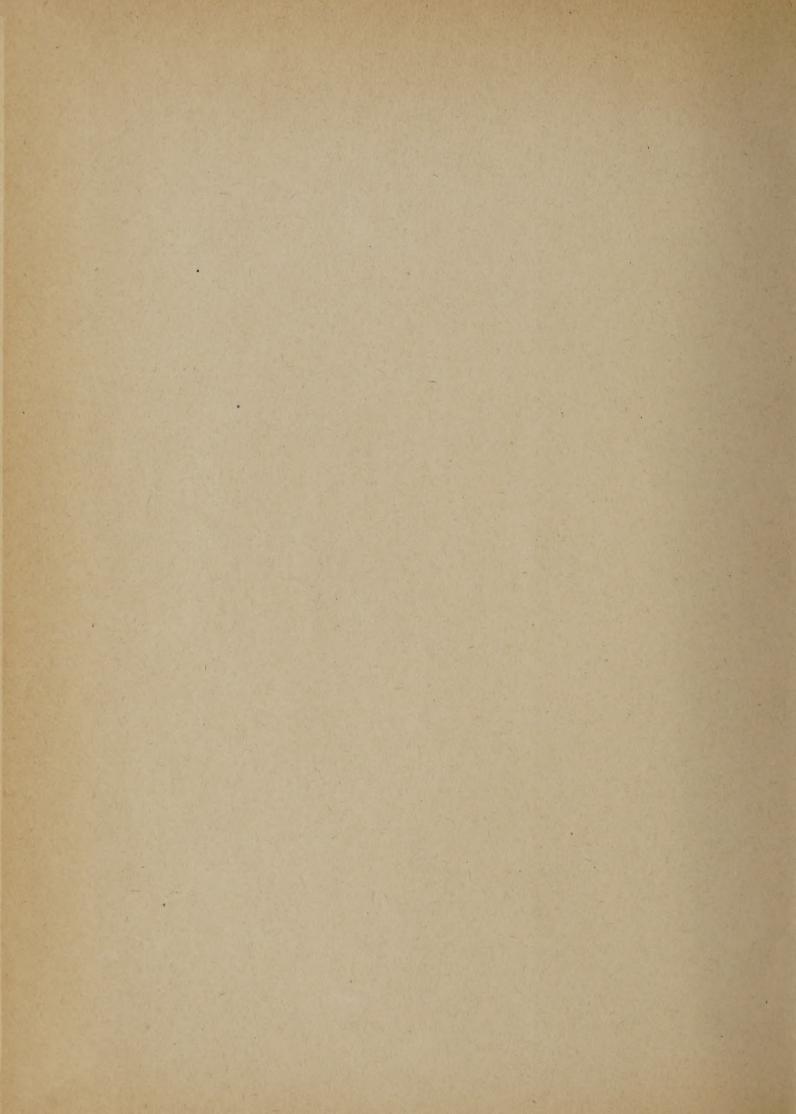


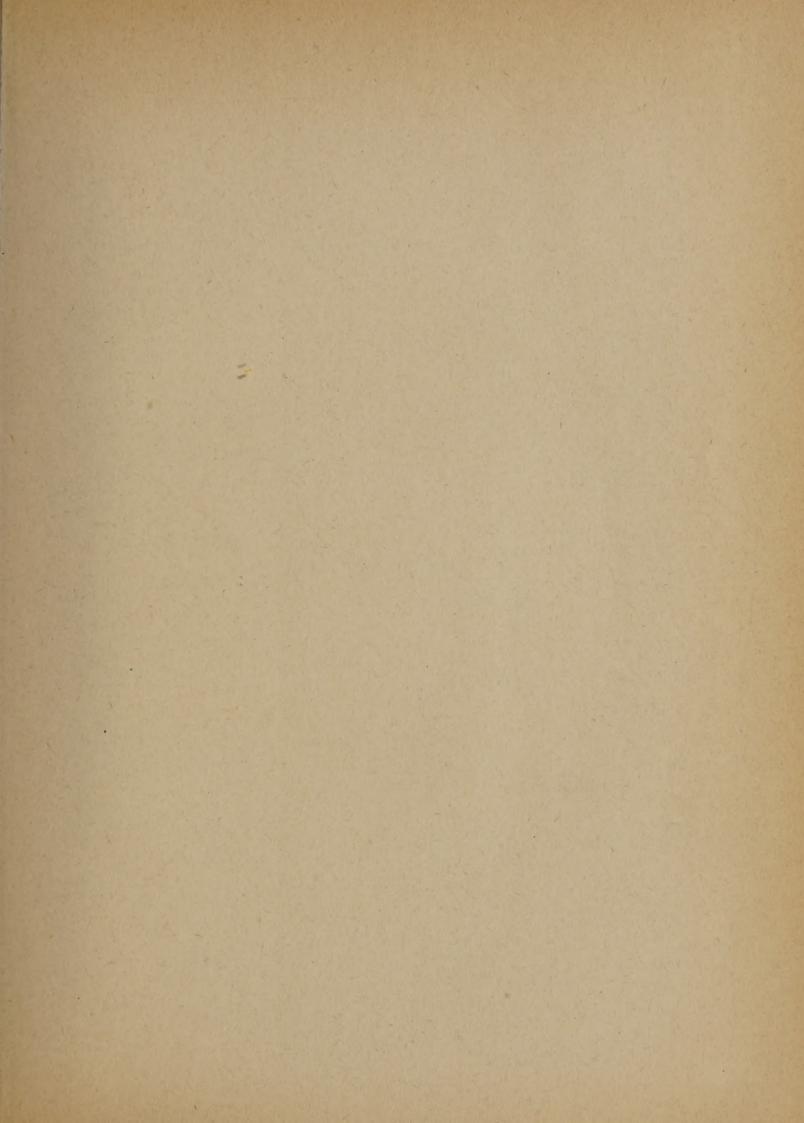
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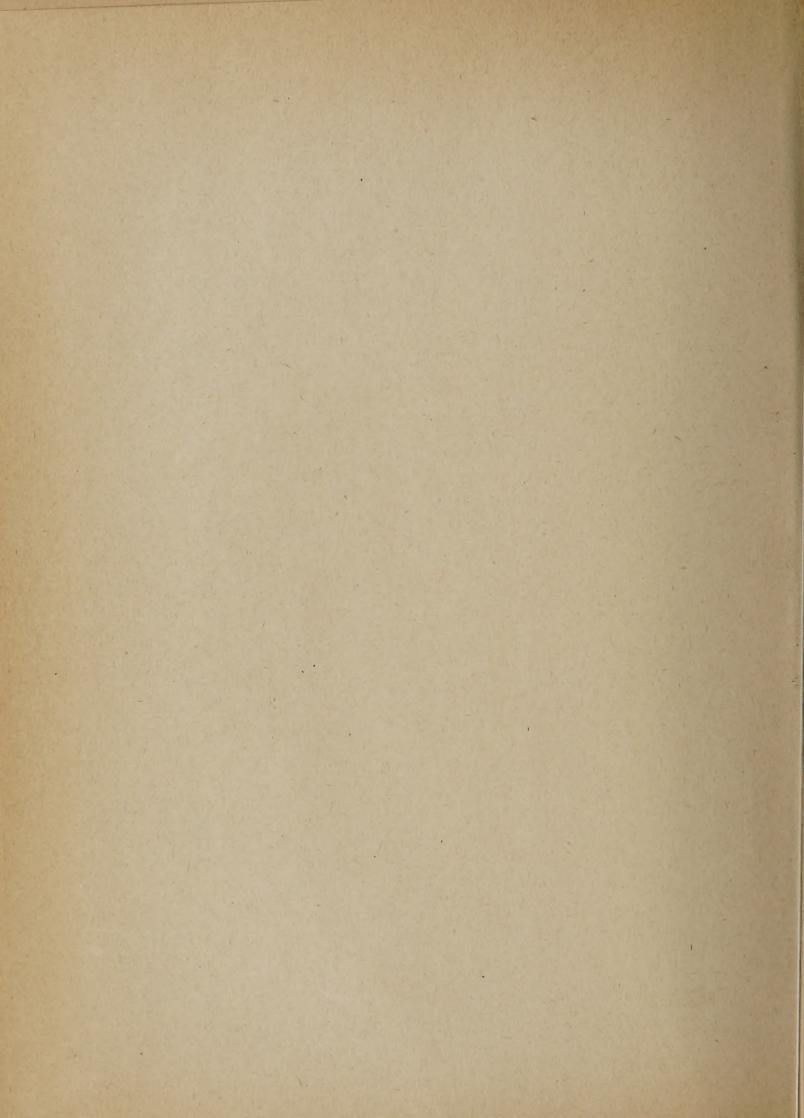
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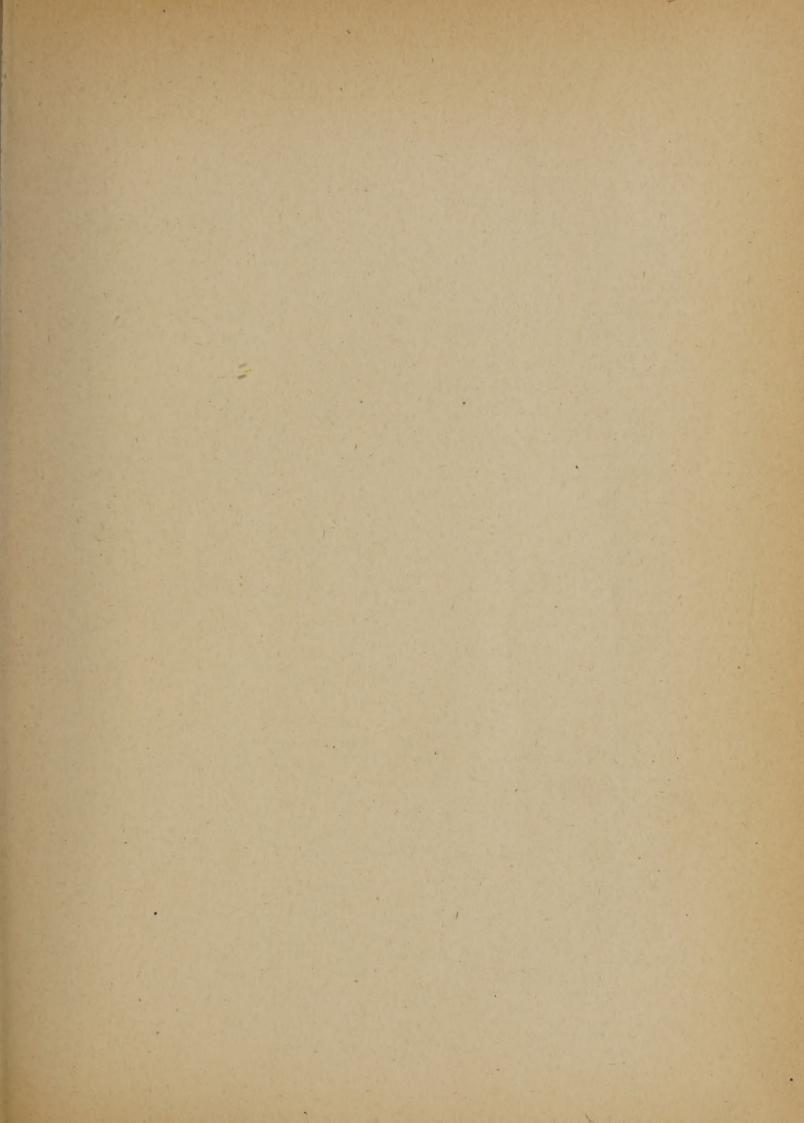
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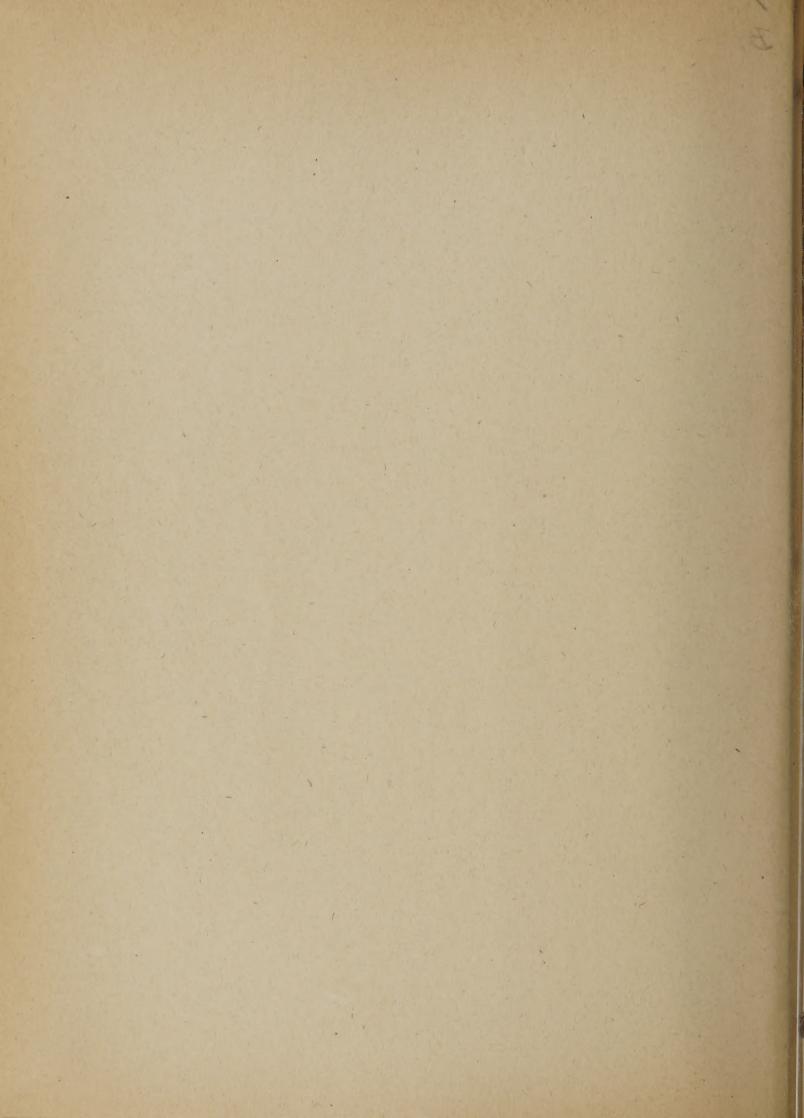












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BACKGROUND DATA OF REGION VII.

A Graphic Summary of Physical, Social, and Economic Features in. North Dakota, South Dakota, Nebraska, and Kansas

John R. Loewenstein

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Land Use Planning Section, Land Utilization Division Resettlement Administration, Region VII United States Department of Agriculture Lincoln, Nebraska

July, 1957

#### ACKNOWLEDGE! ENTS

This study was conducted under the supervision and guidance of T. S. Thorfinnson and Harry A. Steele, and was made possible through the combined efforts of the entire personnel of the Land Use Planning Section. Con-

Ip and advice in connection with the soils

And a mation was furnished by Arthur P. Nelson. Much

credit is also due the members of the cartographic section;

Tarris Anderson, Mary Ellen Melly, and Harley Cole, who

prepared the original maps and stencils from which the

reproductions were made.

Acknowledgement is made to the U. S. Weather Bureau, the U. S. Census Bureau, the State and Federal Statisticians in the region, and others who furnished data or original maps used in this study.



#### FORETORD

The purpose of this publication is to assemble for convenient reference the available background data most pertinent to land utilization in North Dakota, South Dakota, Nebraska, and Kansas.

The types of data presented include the physical resources, character and trend of population, and economic data dealing with tenure, farm income, use of land, crop yields, and distribution of livestock population. This material is presented graphically. The manuscript is largely confined to a brief description of the charts. No attempt has been made to formulate specific conclusions concerning land utilization problems or land use adjustments in the region.

It is hoped that this material will provide perspective for workers engaged in land planning studies or in action programs relating to agriculture. It should also serve as a source of background data for future land planning studies, conducted in the problem areas of this region.

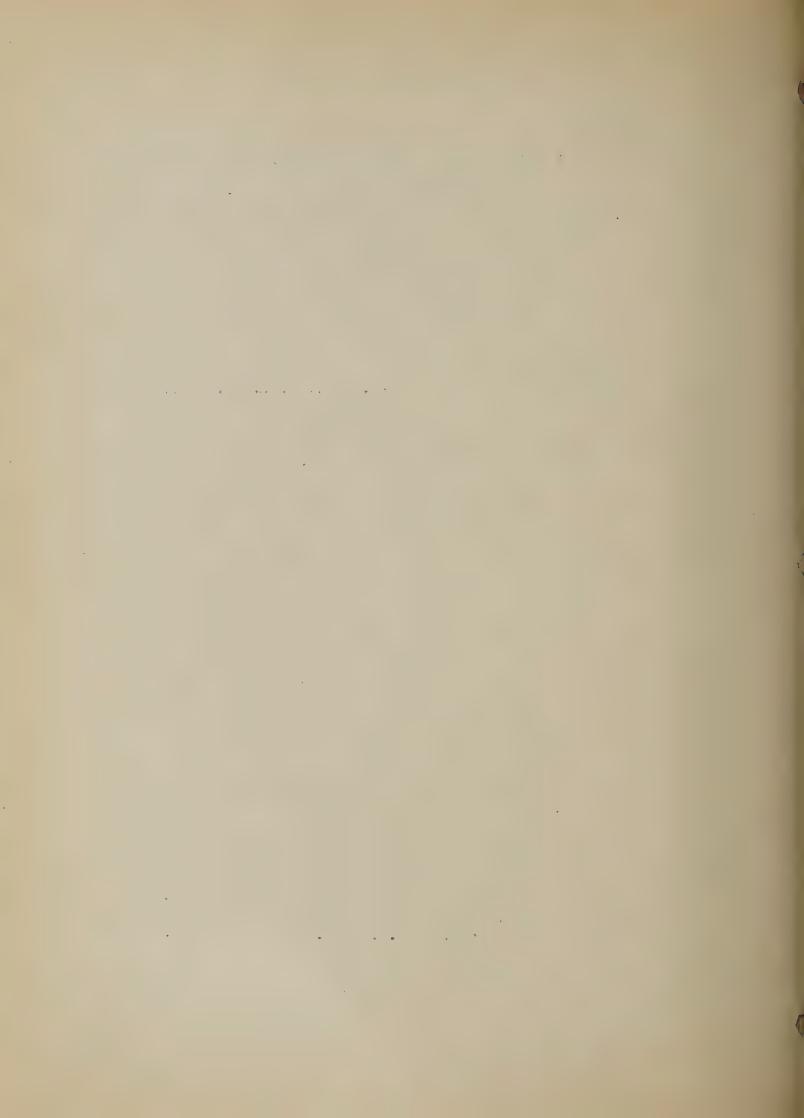
T. S. Thorfingson



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#### PHYSICAL RESOURCES

The characteristics of the physical resources of the region are considered first so that subsequent maps concerning social and economic factors may be studied with these considerations in mind.

Not all of the important characteristics of the physical resources could be included so some of the more important features of climate, soils, and topography have been selected for presentation.

# Physiographic Regions 1/, - Figure 1

The area in the four states is divided into seven major physiographic regions. The first of these, the Western Lake Section 12B, located in the eastern part of the Dakotas, is characterized by moranic lakes and lacustrine plains. To the south of this section is an area designated as 12E, the Dissected Till Plains. This area is that part of the central lowlands in the region that has been covered by glacial drift. In eastern Kansas lies another section of the central lowlands province, the Osage Plains. 12F, which, unlike the Dissected Till Plains, is not covered with glacial drift. These three sections comprise all of the area in the region lying outside of the Great Plains.

The glaciated Missouri Plateau, 13A, lying between the Missouri River and the western La'e Section, is that part of the Great Plains province in which the topography has been modified by glacial ice sheets. To the west, in the area commonly spoken of as

Fenneman, N. M., The Physiographic Regions of the United States.

the west river area of the Dakotas, lies the unglaciated portion of the Missouri Plateau, 13B, which is described as the northern section of the unglaciated plains from which the original sedimentary surface has been stripped. To the south of this area lies a north south belt of the Great Plains, characterized by the remnants of the former flat surface of sedimentation. This area is known as the High Plains, 13D. Through west central Kansas and southern Nebraska extends a broad belt, called the Plains Bordes, 13E.

#### Soil Map - Figure 2

The location and extent of each of the 48 major soils in the region is shown in figure 2. These soils are classified according to the great soil groups to which they belong and the area occupied by each group is outlined. The Prairie, Chernozem, and Dark Brown soil groups are the most extensive, but the Brown, Gray-Brown Podzolic, and Red and Yellow soil groups are also represented. The undifferentiated soils are also located in place.

Prairie Soils occupy the eastern one-third of Kansas and the extreme eastern portion of Nebraska. The line dividing them from the Chernozem soils extends northward from Summer county, Kansas, and passes northeastward through Nebraska from Webster to Dakota counties.

Chernozem Soils extend as a broad belt through central Kansas and Nebraska, and the central and eastern portion of the Dakotas.

The eastern boundary in Kansas and Nebraska is that described as

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the western boundary of the prairie soils; the Chernozem extends less than 50 miles east of the North and South Dakota state lines. The western boundary extends from southwestern Kansas to the Nebras-ka Sand Hills in a line nearly parallel to the Colorado state line, and 65 miles east of it; in the Dakotas it closely follows the Missouri river.

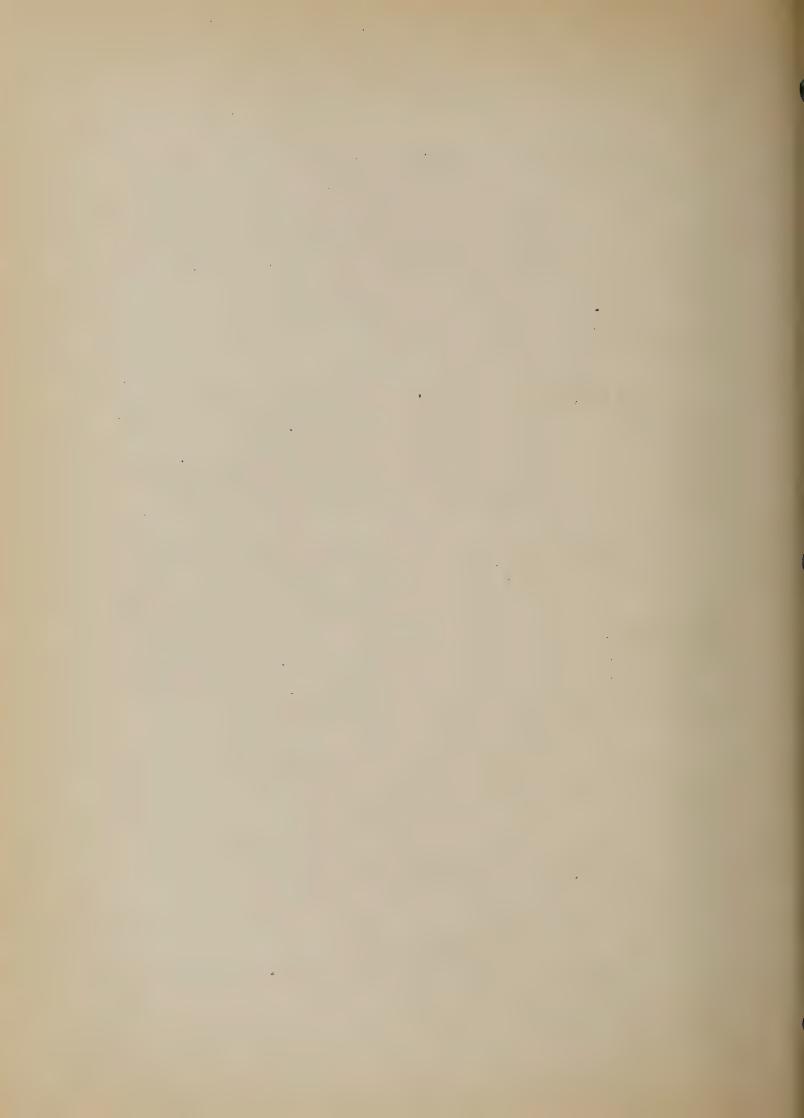
Dark Brown Soils occupy most of the western portions of Kansas, Nebraska, and the Dakotas. They are bounded on the east by Chernozems in Kansas, by sand hills in Nebraska, and the Chernozems boundary along the Hissouri river in North and South Dakota.

One Brown Soil, Otero, enters Kansas in Hamilton county, along the Arkansas river. Small areas of Knox, classified as Gray-Brown Podzolic Soil, are mapped along the Missouri river in Kansas and Nebraska. Small areas of Miller, a soil of the Red and Yellow Soils group, are mapped in south central Kansas.

The Undifferentiated group includes the Sand Hill Region of north central Nebraska, the Black Hills and Bad Land areas of west-crn South Dakota, the Bad Lands along the Little Missouri river in western North Dakota, and many smaller areas of Marsh, swamp, sand, and rough land.

# Erosion - Figure 3

The extent and seriousness of crosion under the existing land utilization practices is shown in figure 3. Erosion is



of the Dakotas, along the Platte river in central Nebraska, and in northwestern and southwestern Kansas.

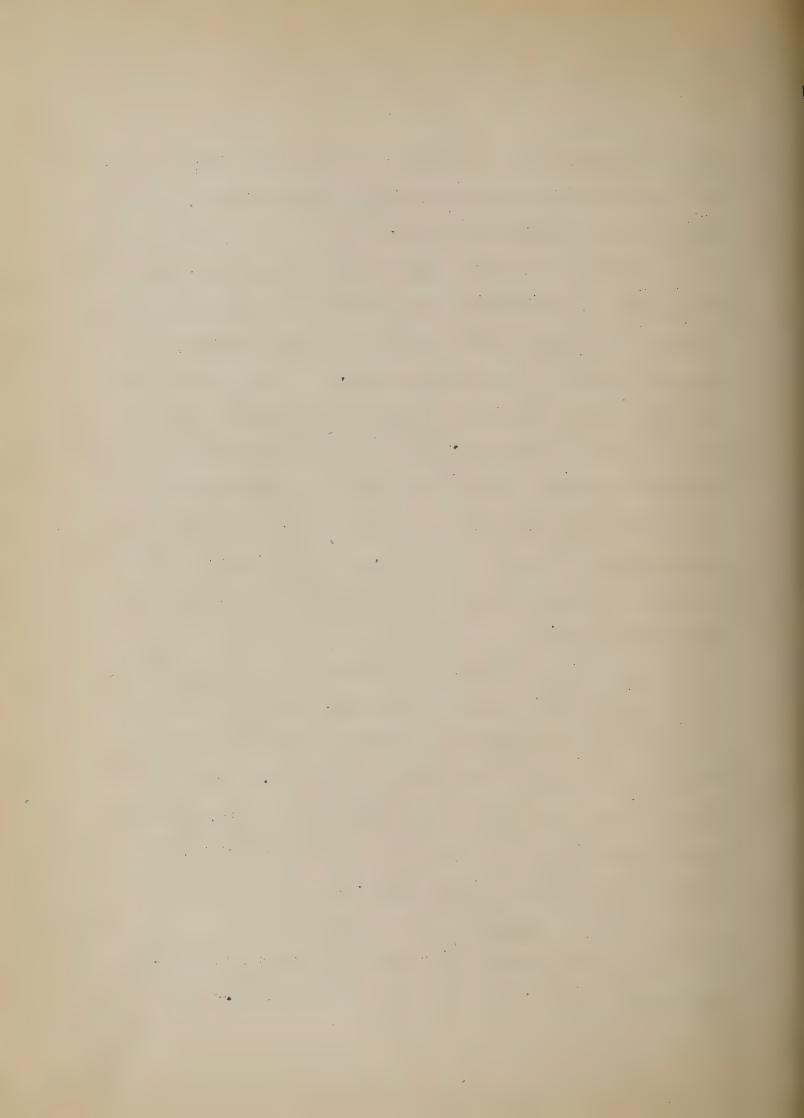
cast central and southwestern part of North Dakota; scattered areas in northern and southern South Dakota; northeastern, central, and southern Nebraska; and northeastern Kansas. The most serious wind and water erosion occurs in the cultivated and overgrazed portions of the remainder of the region. Wind erosion effects southwestern Kansas, north central Nebraska, south central and northeastern South Dakota, and central and northeastern North Dakota, while water erosion is found in the Badlands of the Dakotas, along the Missouri river in Nebraska and Kansas, and in a narrow belt through northeastern and north central Kansas.

# Elevation - Figure 4

The range in elevation in the region varies from around 500 feet along the eastern border to approximately 8000 feet in the Black Hills along the western border of South Dakota. For the most part the altitude increases gradually as one goes westward, but in the High Plains of western Nebraska and the Black Hills of South Dakota the change is often more pronounced.

# Climate - Figures 5 to 10

The characteristics of moisture and temperature, two principal factors of climate, may be observed from these maps.



The total average yearly rainfall, figure 5, varies from

40 inches in the southeastern corner of the region to 14 or 16

inches along its western boundary. However, approximately threefourths of this precipitation occurs during the warm season menths

of April through September, figure 6. In this connection, it should
be noted that effectiveness of precipitation varies considerably.

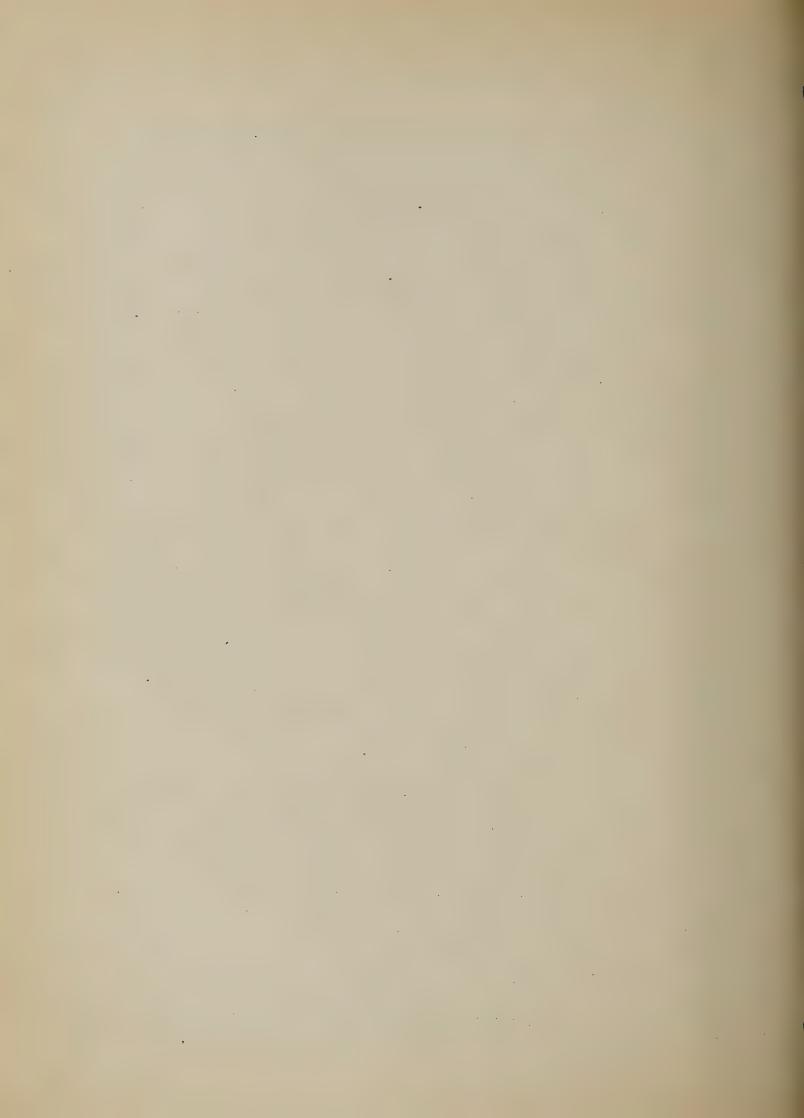
For example, figure 6 shows that the annual warm season precipitation at Dodge City, Kansas, and Edgeley, North Dakota, is very nearly the same, yet because of the difference in the rate of evaporation,
shown by Figure 7, 15 inches of rain at Edgeley is as effective as

20 inches at Dodge City, 1/.

The information shown in figure 8 should be thoroughly understood to avoid misinterpretations. A four month drought is here defined as any period of four months during which the average rainfall for each month is less than 60 per cent of normal. For this reason, there may be as many as three droughts in a single year. This accounts for the fact that in the southwestern corner of Kansas there have been 42 droughts in 40 years.

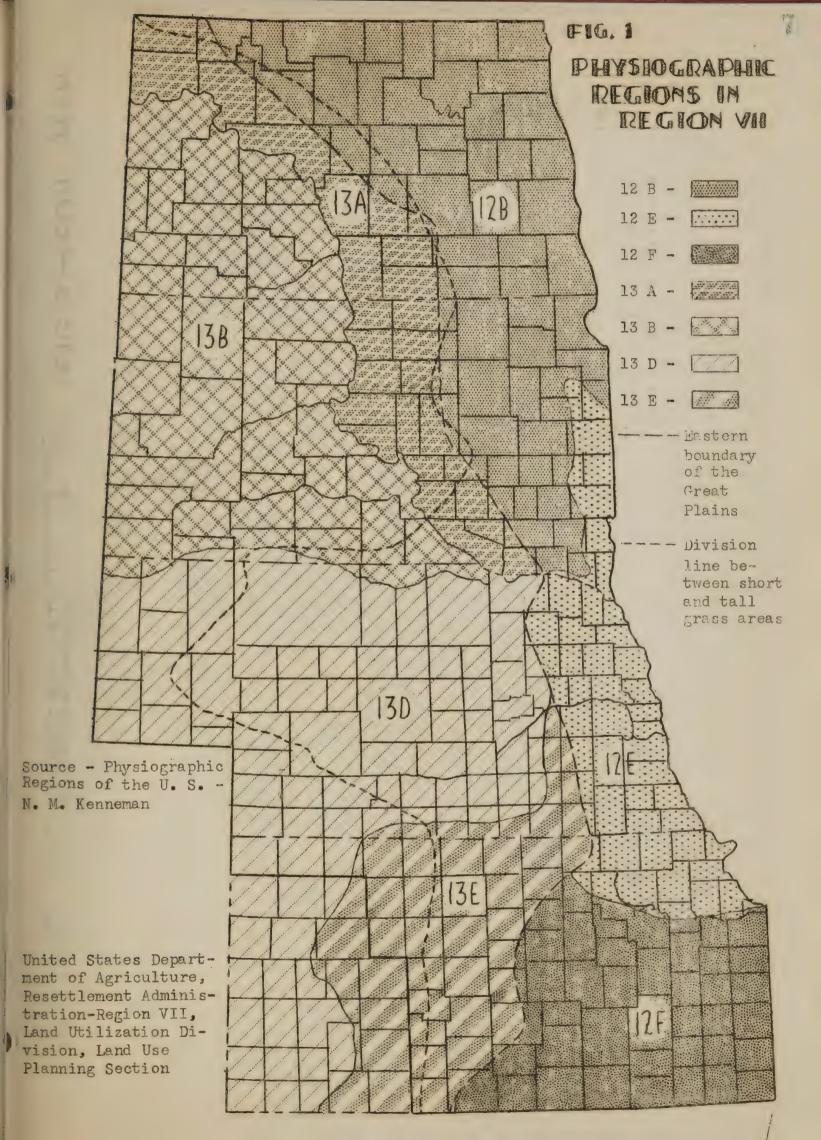
The length of growing season imposes numerous restraints on crop production, figure 9. It should be noticed that while the average length of growing season varies from approximately 200 days in the southeastern corner of the region to 110 days along the northern boundary, the available growing season 4 years out of 5 varies from 160 to 96 days.

<sup>1/</sup> Tyaporation rate is calculated on the basis of a free water surface and may not apply strictly to evaporation from the soil.

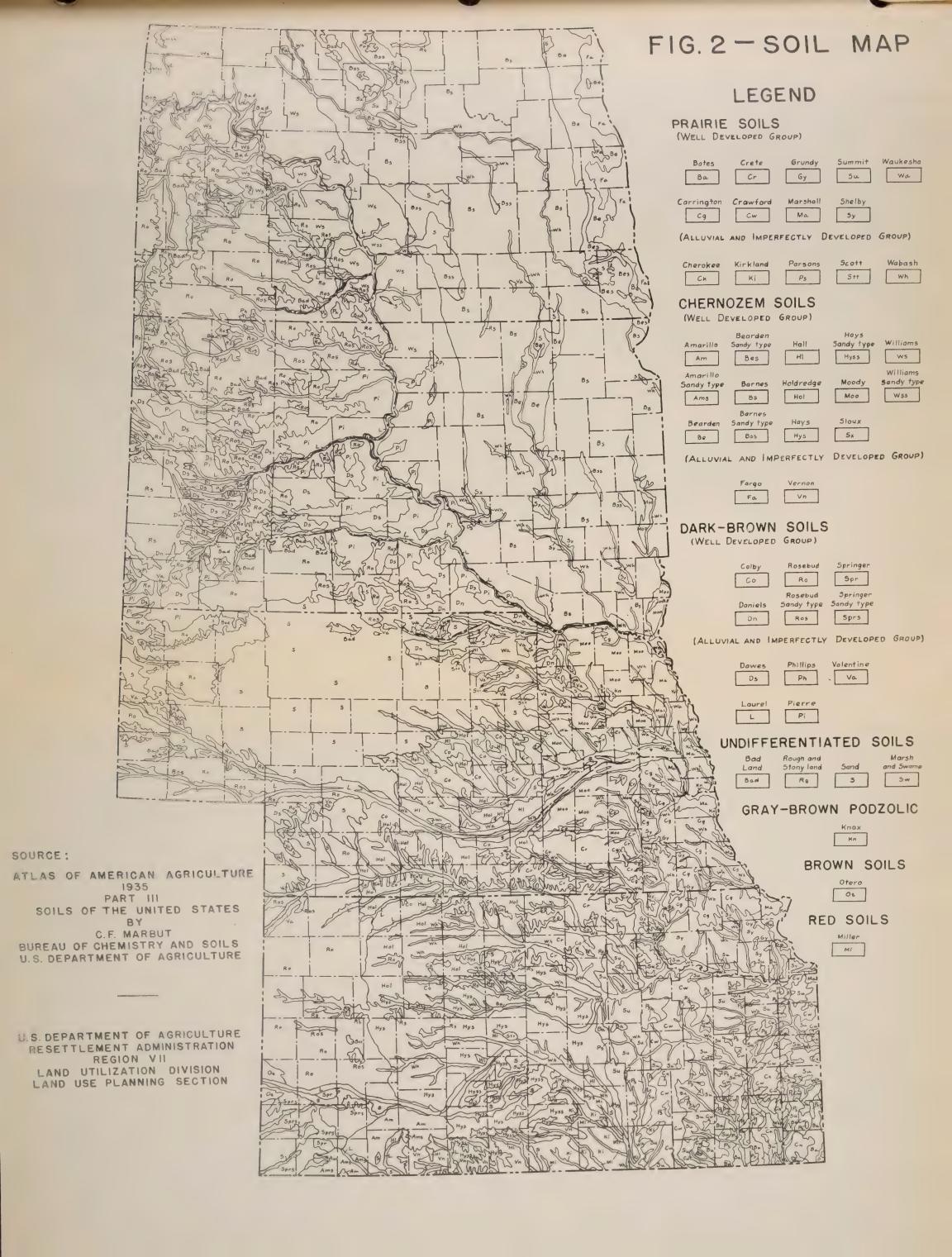


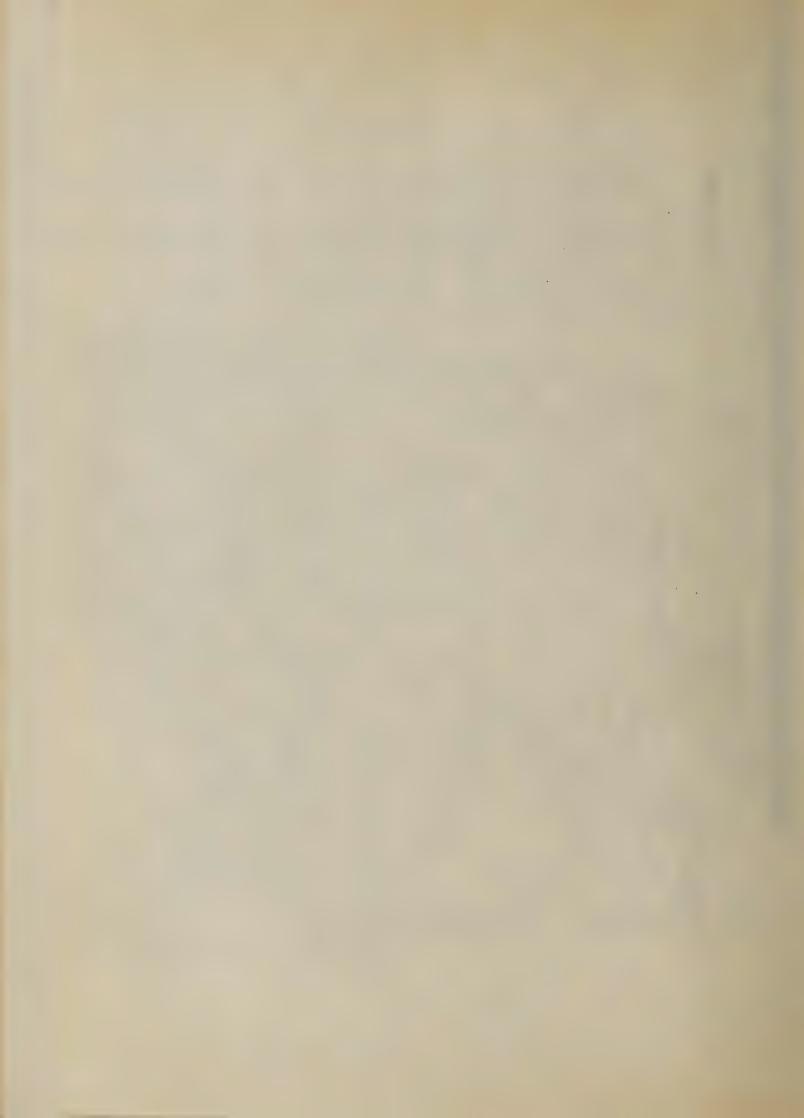
Apparently the usual growing season is a better measure of normal expectations than is the average growing season.

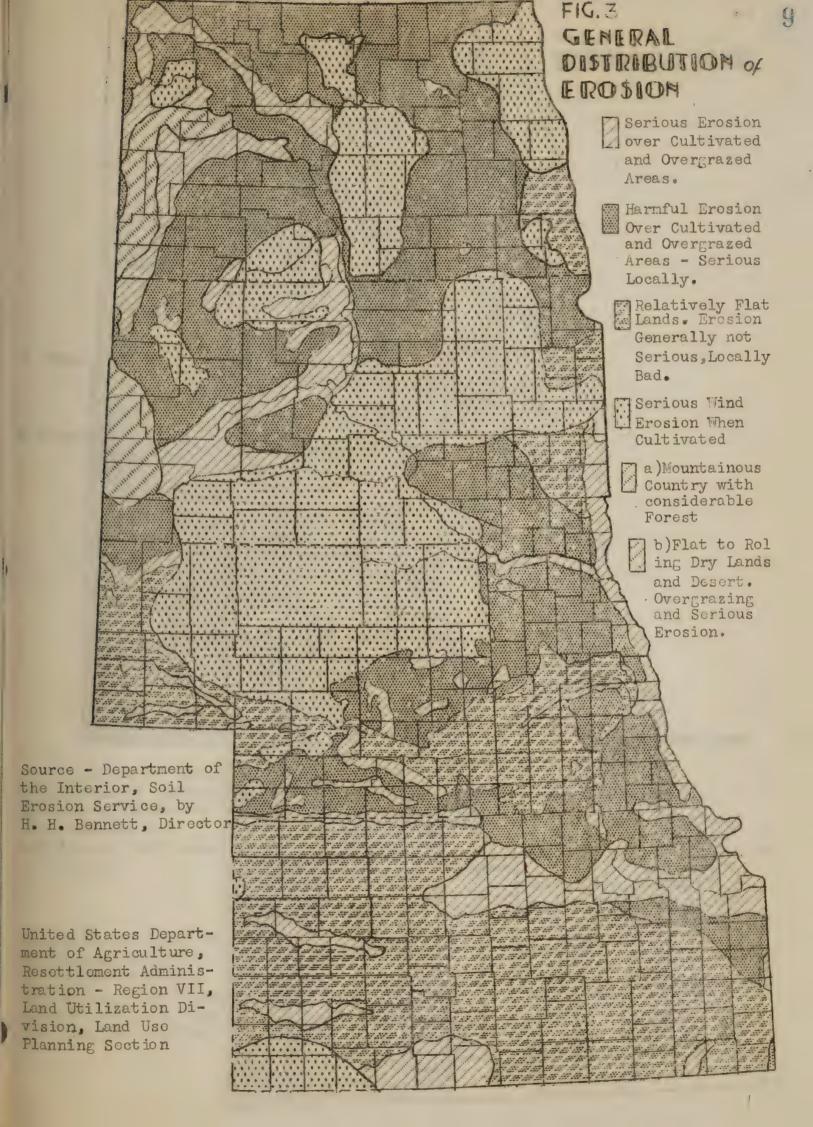


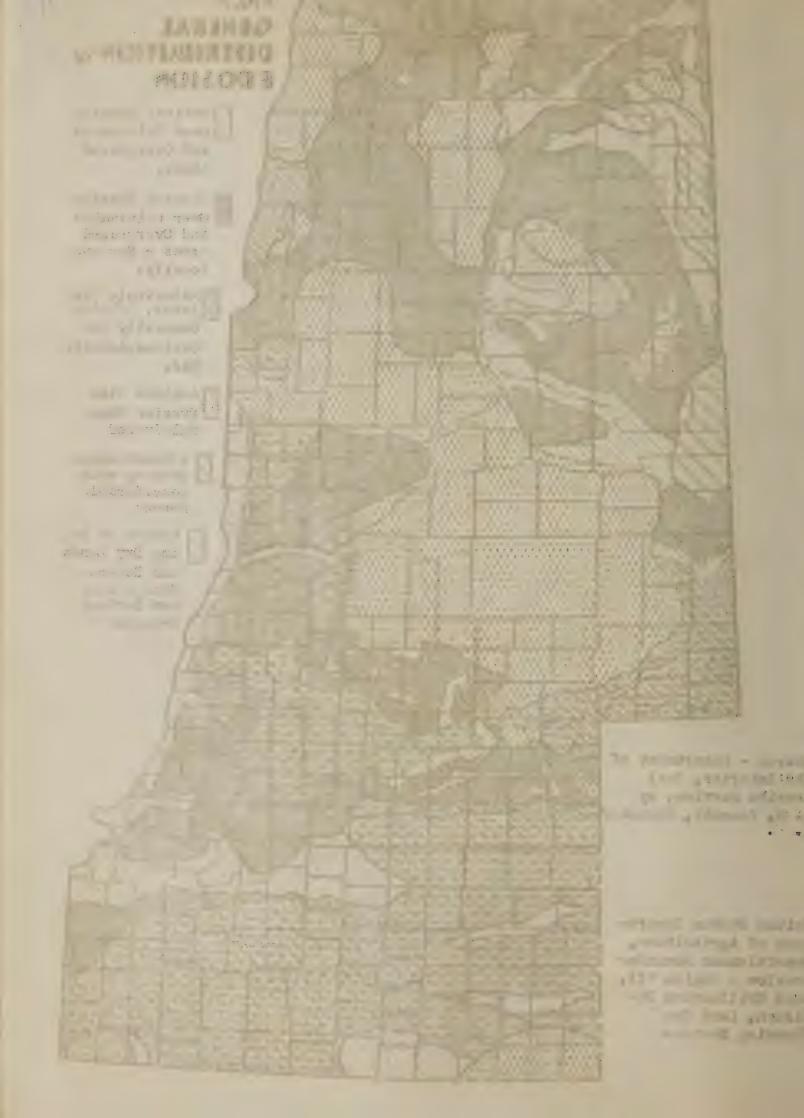


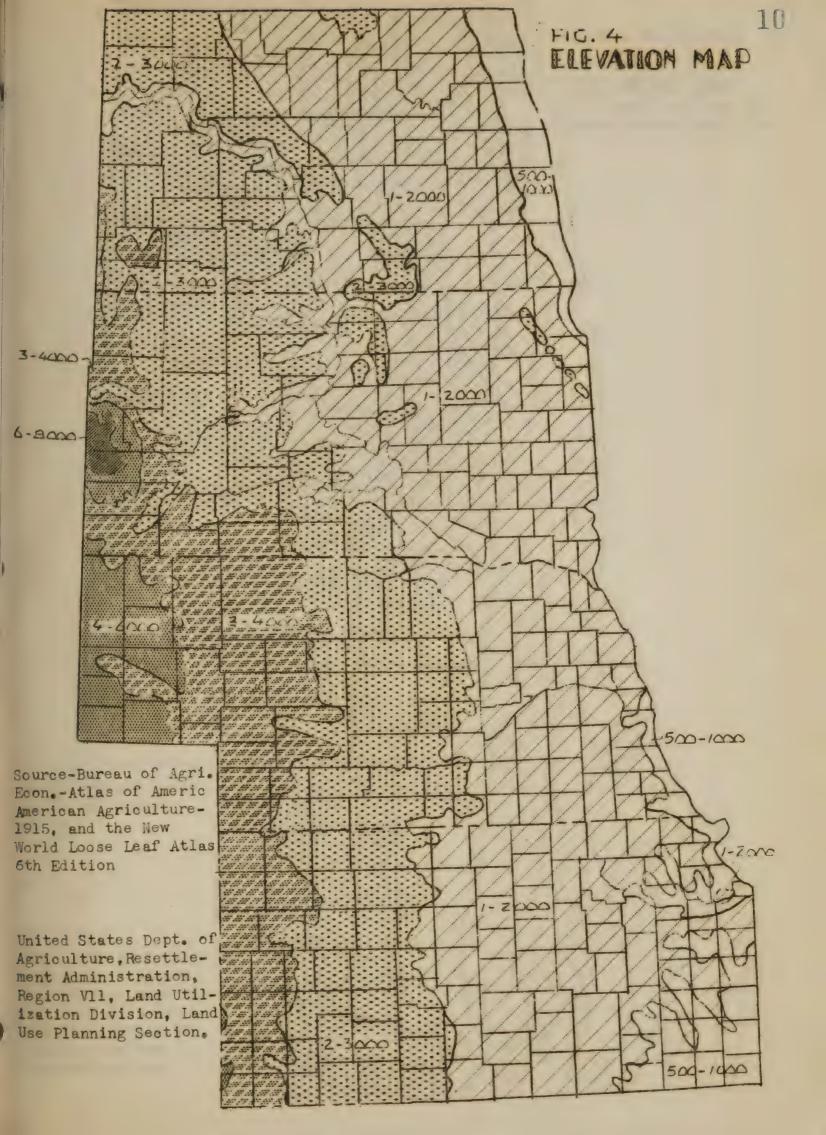


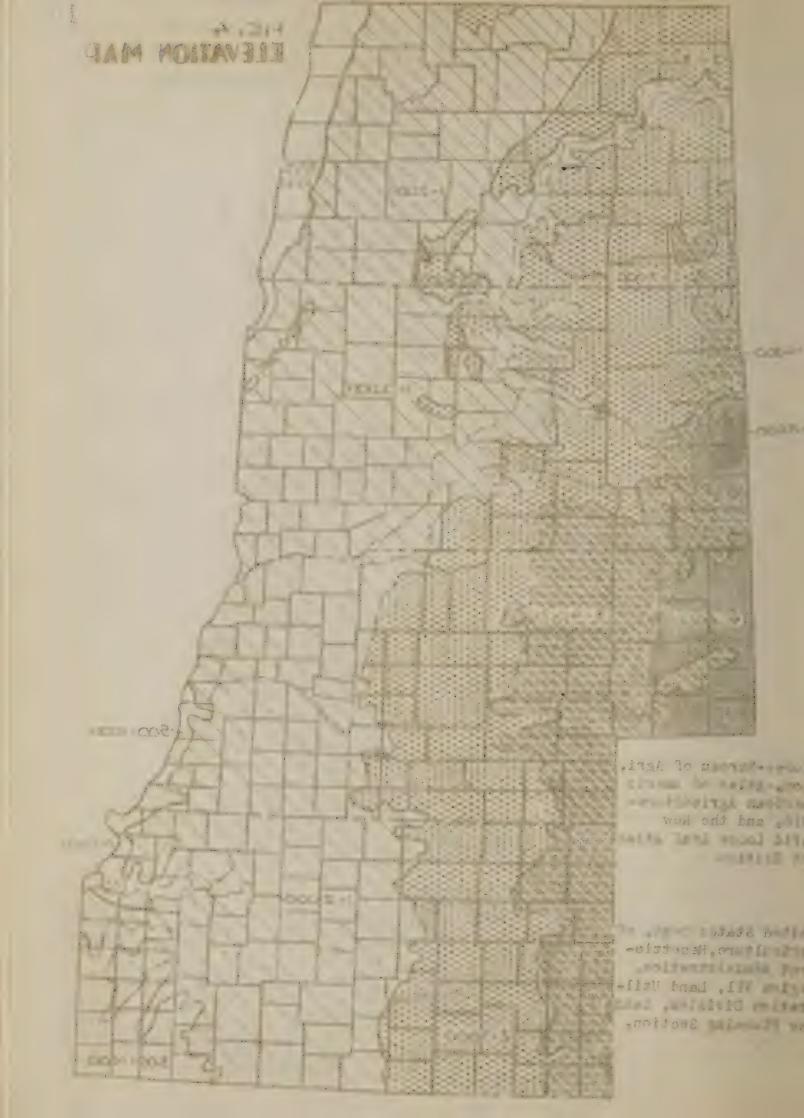


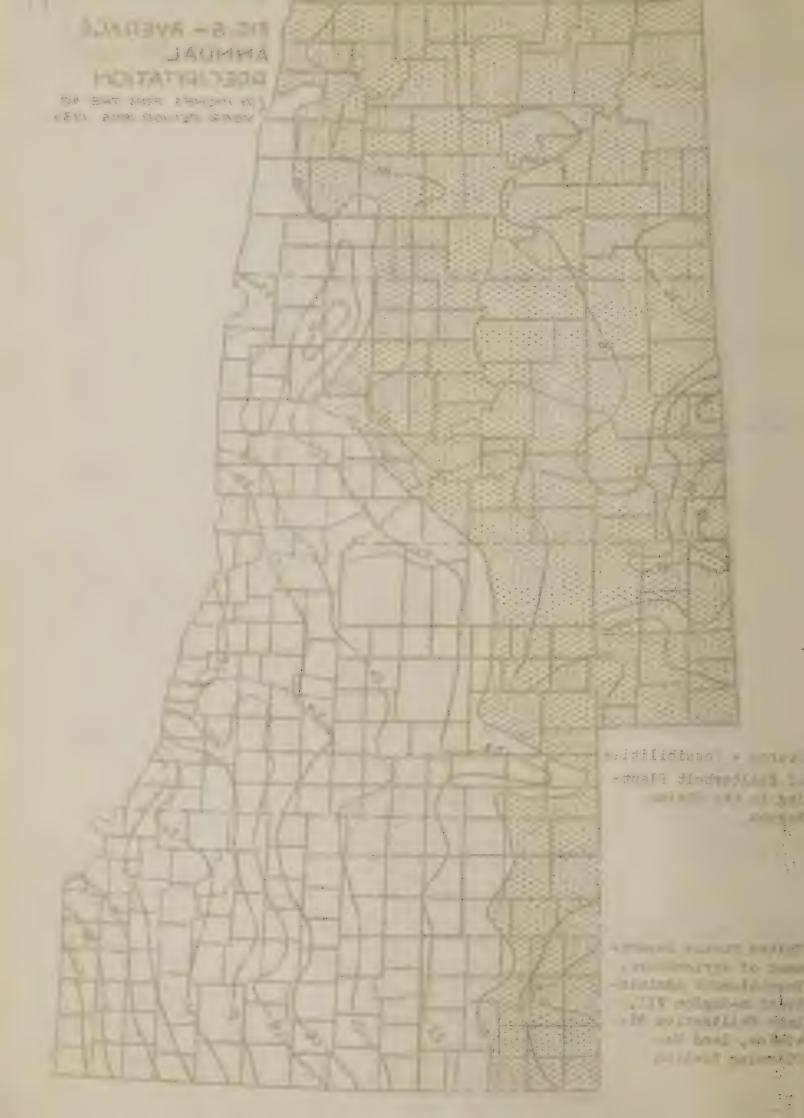


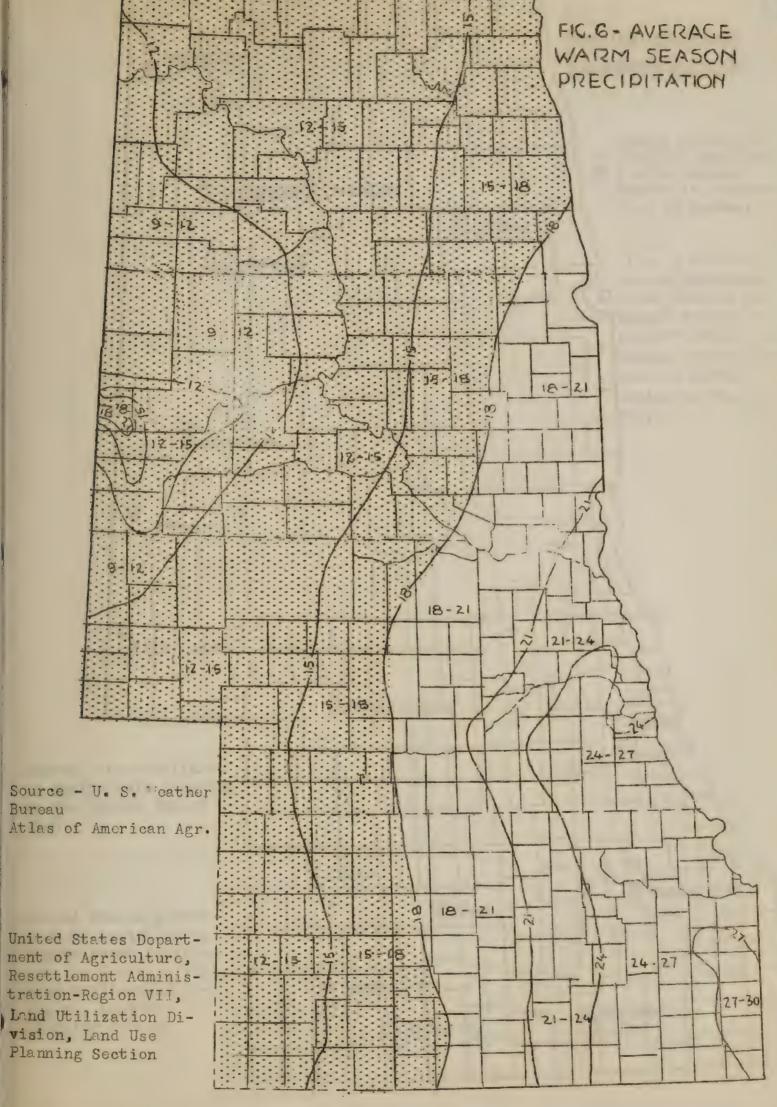




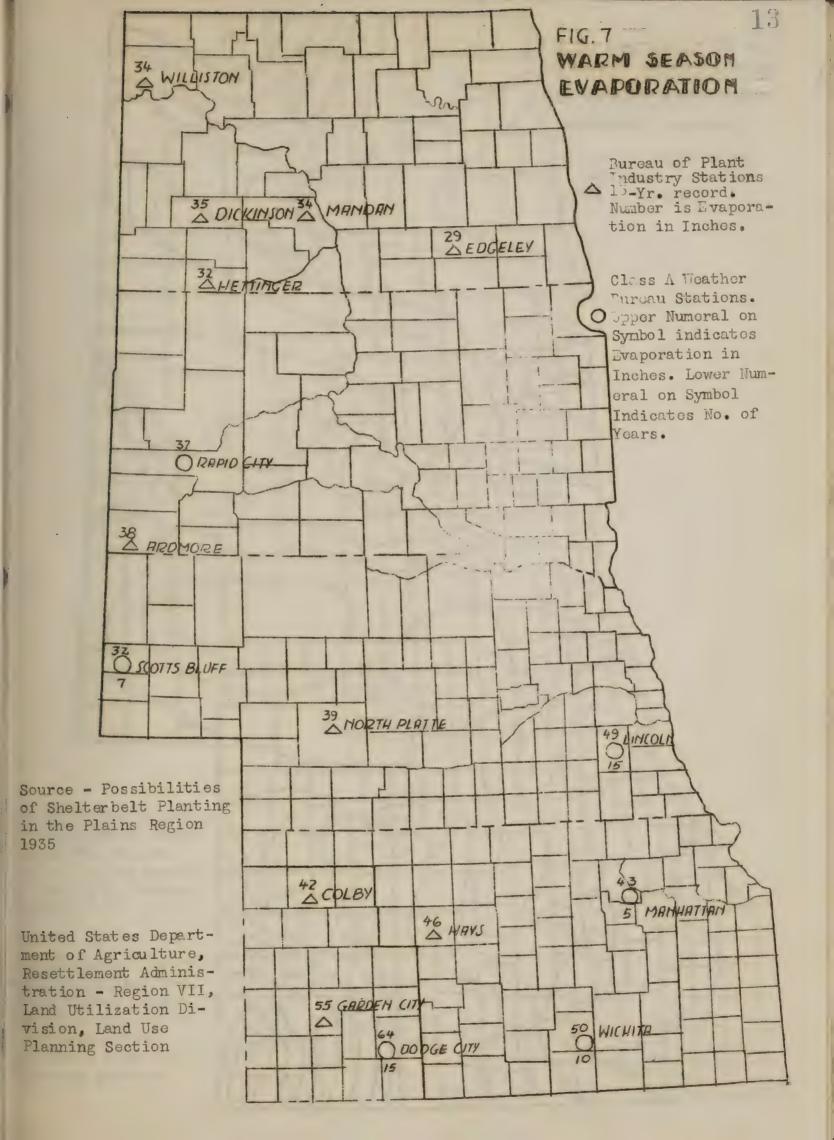


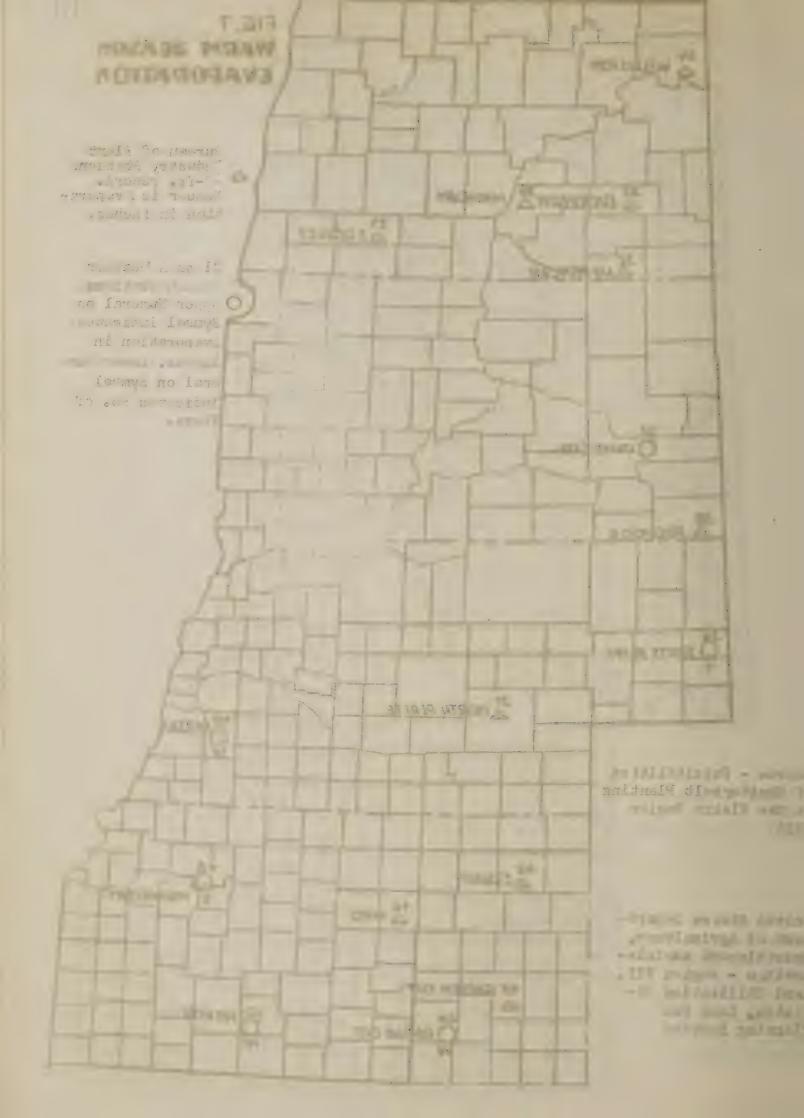


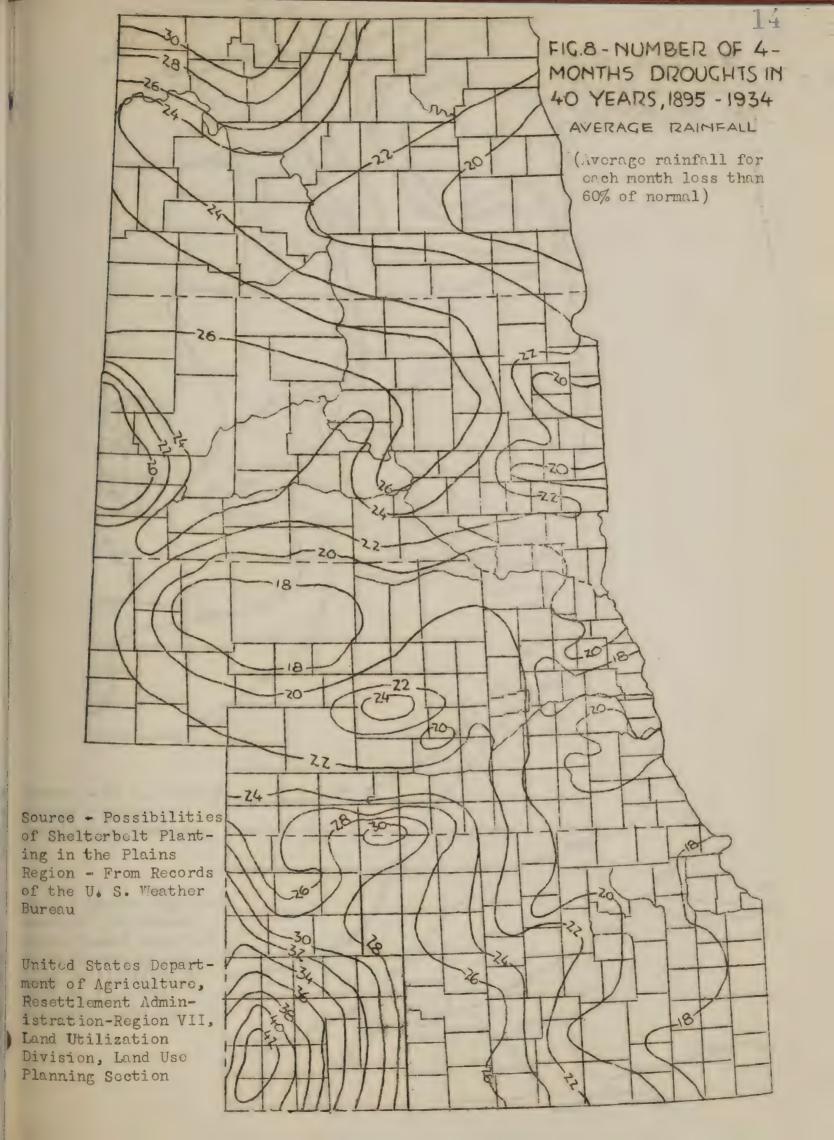


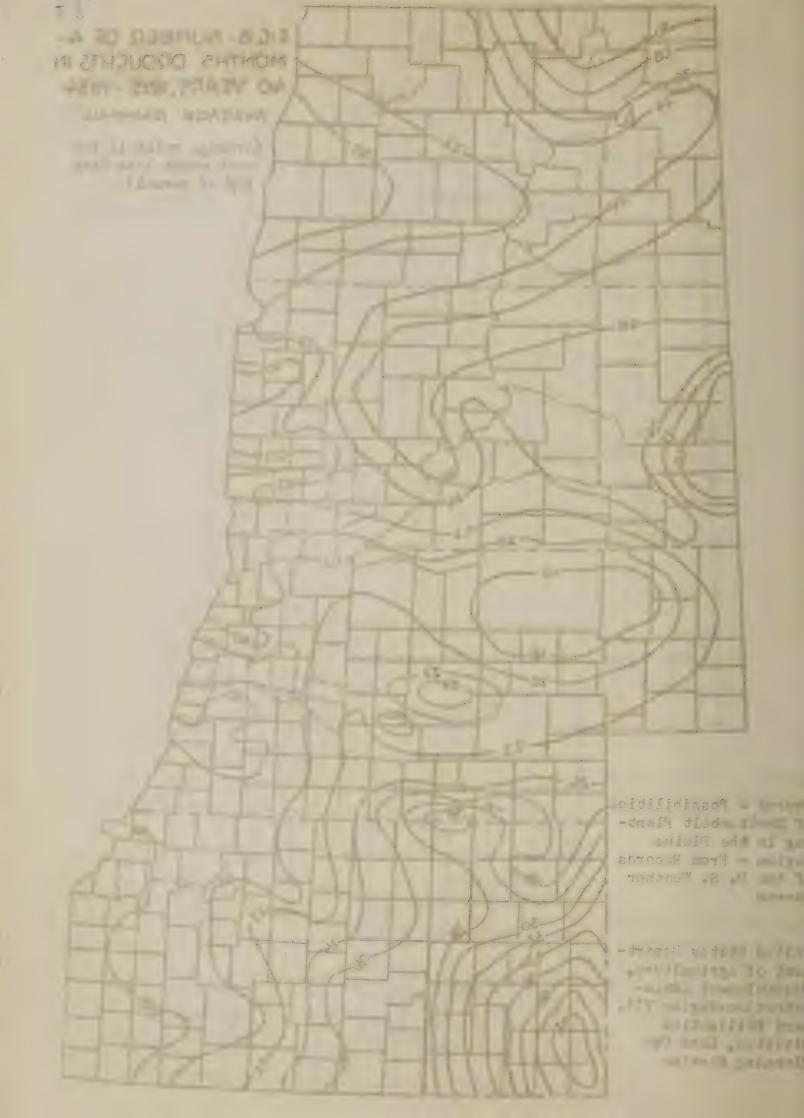


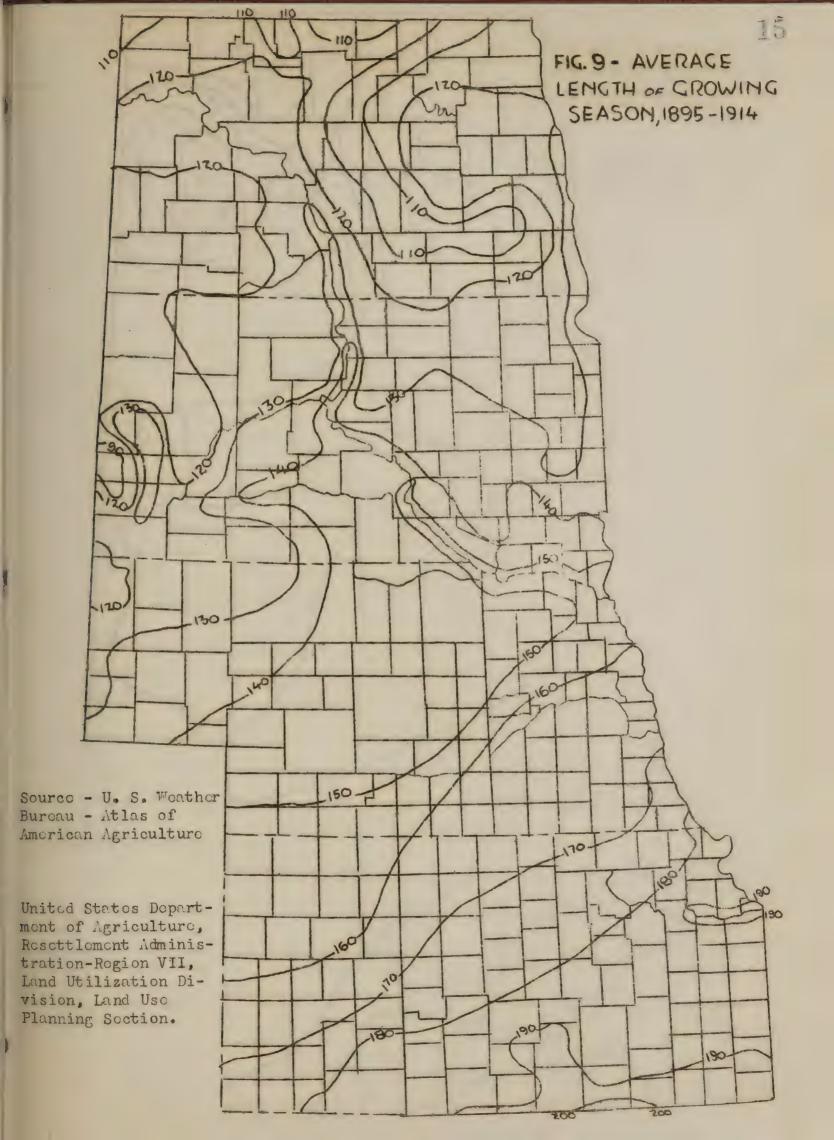


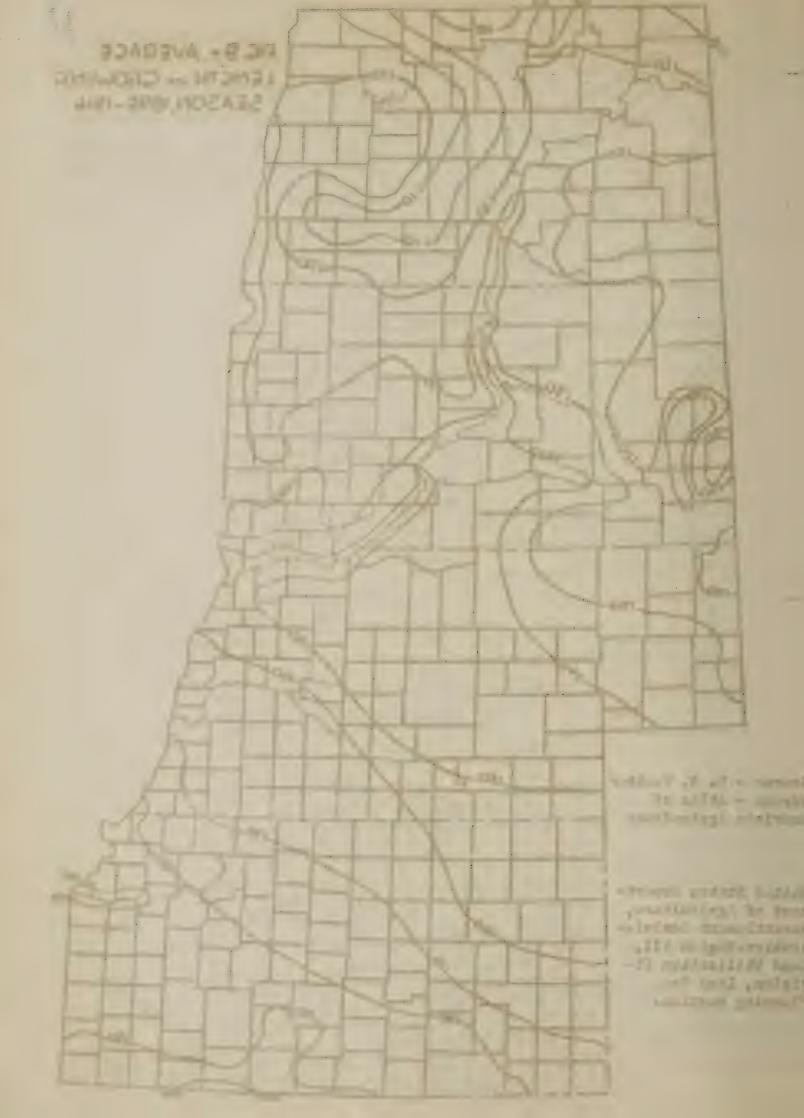


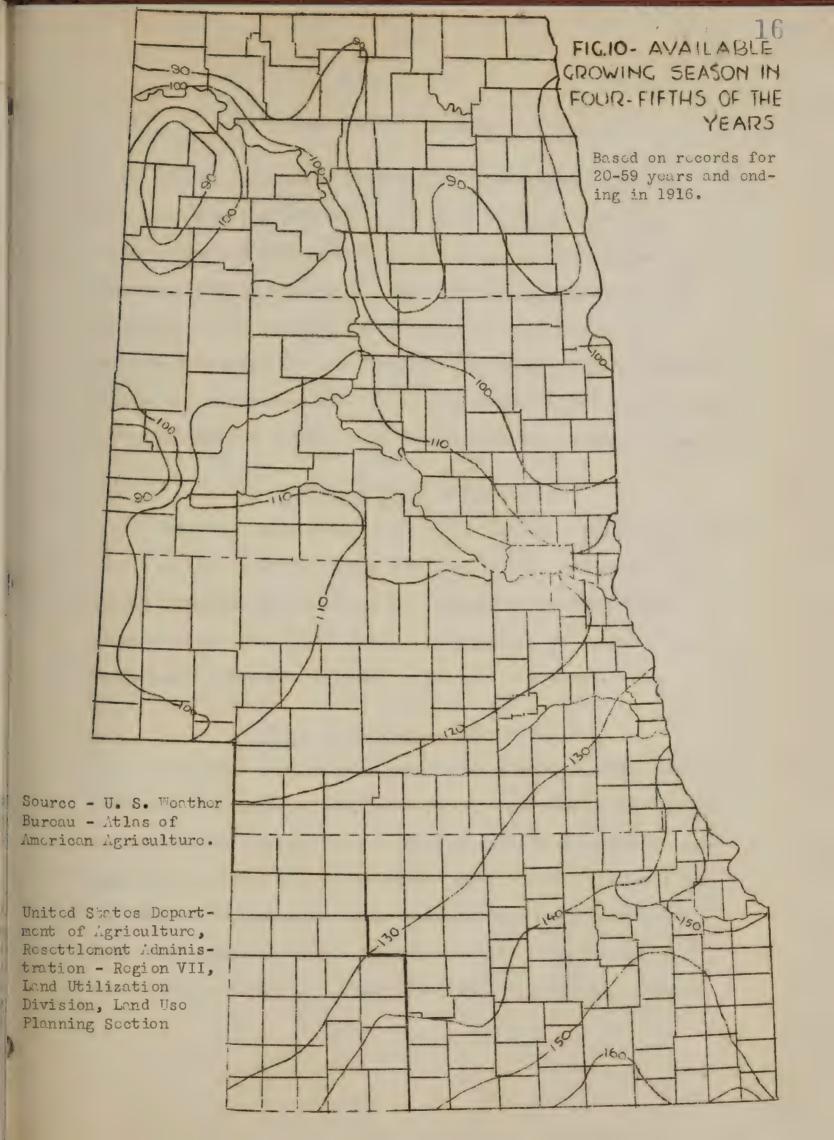


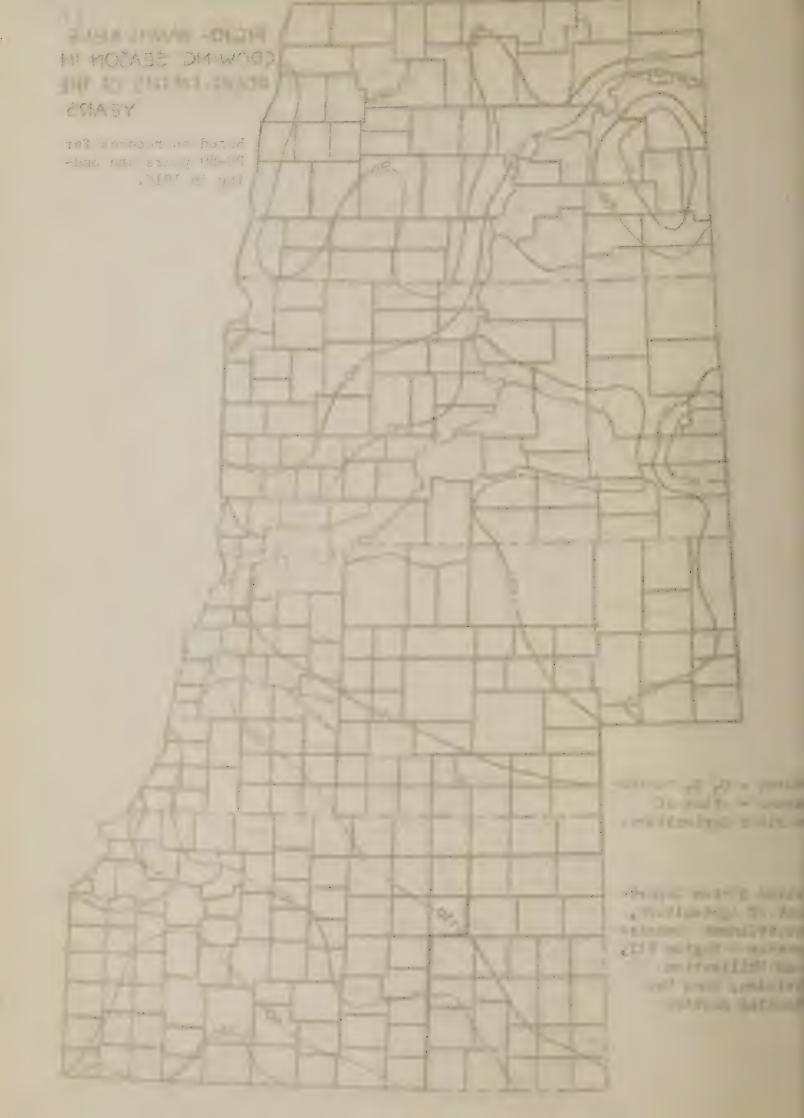












#### POPU ATTON RESOURCES

Of the many social factors that could be presented, only population data has been mapped for presentation in this study. It is the purpose of this section to observe its growth, changes, and characteristics in the region. Such factors as distribution, rate of increase, size of family, predominant nationalities, and per cent illiteracy of population are presented for interpretation. Interpretations may not only be made of the population data but may be carried a step further and compared with the physical data previously examined.

#### Population Trends - Figure 11

The total population of the region has increased from slightly over 3 million in 1890 to about 5 million in 1930, all states sharing in the increase. Almost all of the increase in rural population occurred in the Dakotas while the larger part of the increase in urban population may be attributed to Nebraska and Kansas.

# Change in Population - Figure 12

The total population increased approximately 6.5 per cent in the region from 1920 to 1930, but particular counties in the several states deviated considerably from this figure. In a number of counties in the eastern half of the region the population decreased during this period, the expectations usually being influenced by a large town or mere favorable farming conditions. In the western section of the region most counties reported an increase, a number



of which were over 20 per cent and as high as 184 per cent. The survey of the physical resources revealed that these counties are located in relatively high risk areas.

#### Rate of Population Increase - Figure 13

The reproduction rate may be regarded as an indicator of population trends. It is expressed in the ratio of children under 5 per 1000 females 15 to 44 years of age. The highest rates of increase occur in the typical farming areas while the lowest rates prevail in the areas most affected by unean population. However, there is some variation from this general tendency throughout the region.

### Distribution of Population - Figures 14 to 18

The total population tends to concentrate around the larger towns, due primarily to the influence of the urban population, while the rural farm population is spread more evenly throughout the region. However, it tends to become heavier near the larger towns, figures 14 and 15. Total and rural-farm population per square mile also indicates the distribution of the people in the area, figures 16 and 17. The sparse population of the west river area of the Daketas, the sand hills of Nebraska, and the "Dust Bowl" of Kansas stand out in centrast to the more heavily populated areas.



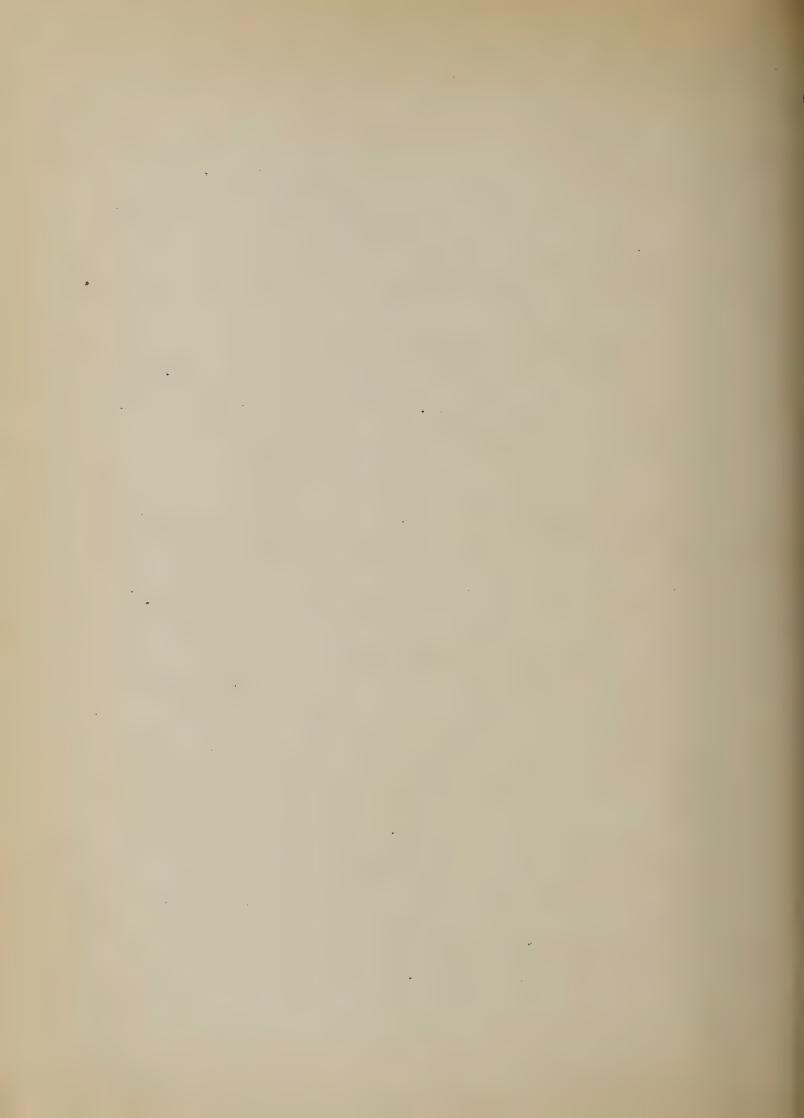
Another factor in the distribution of population is the prodominance of rural-farm, urban, or rural-nonfarm people. Figure 18 reveals that the population is predominantly rural-farm except for the Black Hills of South Dakota, the eastern and southern portions of Kansas and other scattered counties where large towns are located.

### Average Size of Family - Figures 19 and 20

The average size of all families in the region is 4.1 and that of rural-farm families 4.5. In the southeastern part of Nobraska and the eastern half of Kansas the size of family of both groups is generally lower than average while in North Daketa families are generally larger than average. In South Daketa the smaller sized families are more often found in the west river area while the larger families are generally located in the eastern half of the state.

### Nationality of Poreign Born - Figure 21

The foreign born population makes up about 7.7 per cent of the total population in the region. They are largely of European origin, with Germans, Russians, and Norwegians predominating in individual counties. In North Dakota, Norwegian and Russian are the most numerous; in South Dakota, Norwegian, German and Russian; in Nebraska, German, with an intermingling of Scandinavian and castern European influences; and in Kansas, German, Russian, and other nationalities. The letter in each county indicates the most numerous single nationality. The different crosshatching



shows the predominant nationality groups as classified in the accompanying legend. The Eastern European group, largely Russian, predominates in central North Dakota, north central South Dakota, and west central Kansas', while the Scandinavian group are most numberous in the western and eastern parts of the Dakotas, and west contral Nebraska. In the remainder of the area, except for scattered counties, the central European group predominates.

# Per cent of Population Foreign Born or of Foreign Born Parentage - Figure 22

Approximately 33 per cont of the total population in the region is foreign born or of foreign born parentage. This element is concentrated in the northern and eastern half of the region as shown by the darker shadings of that section.

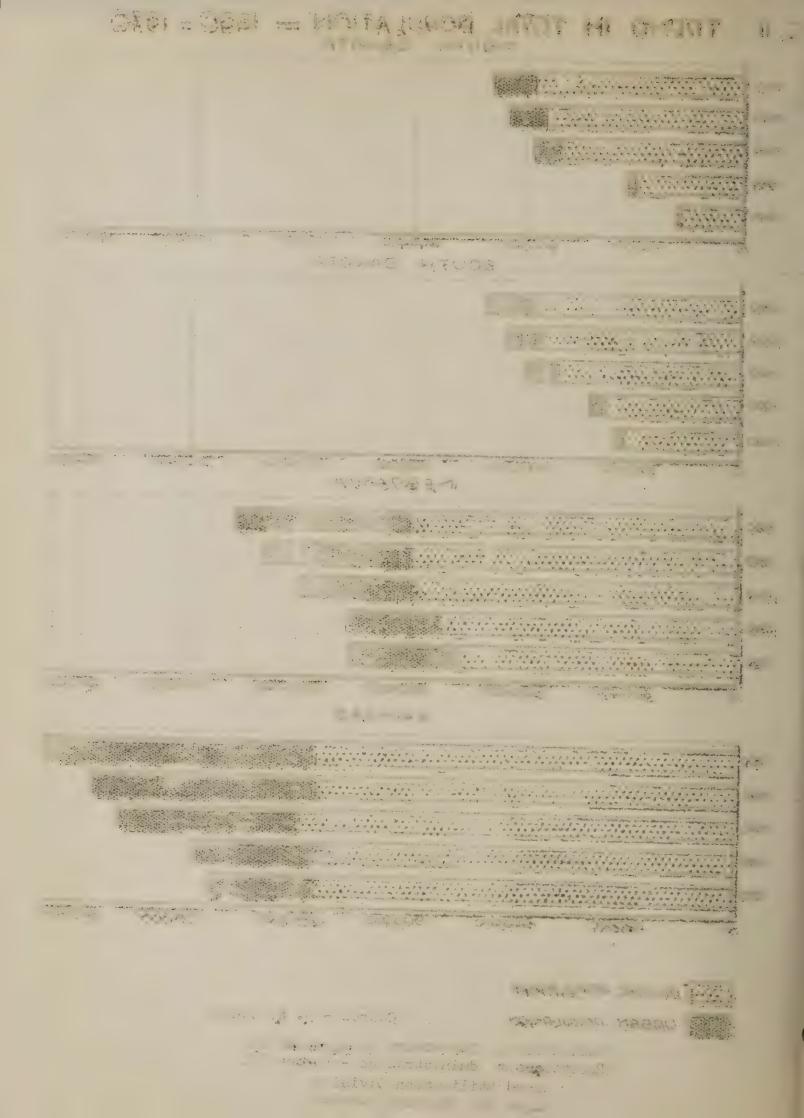
# Illitoracy - Figure 23

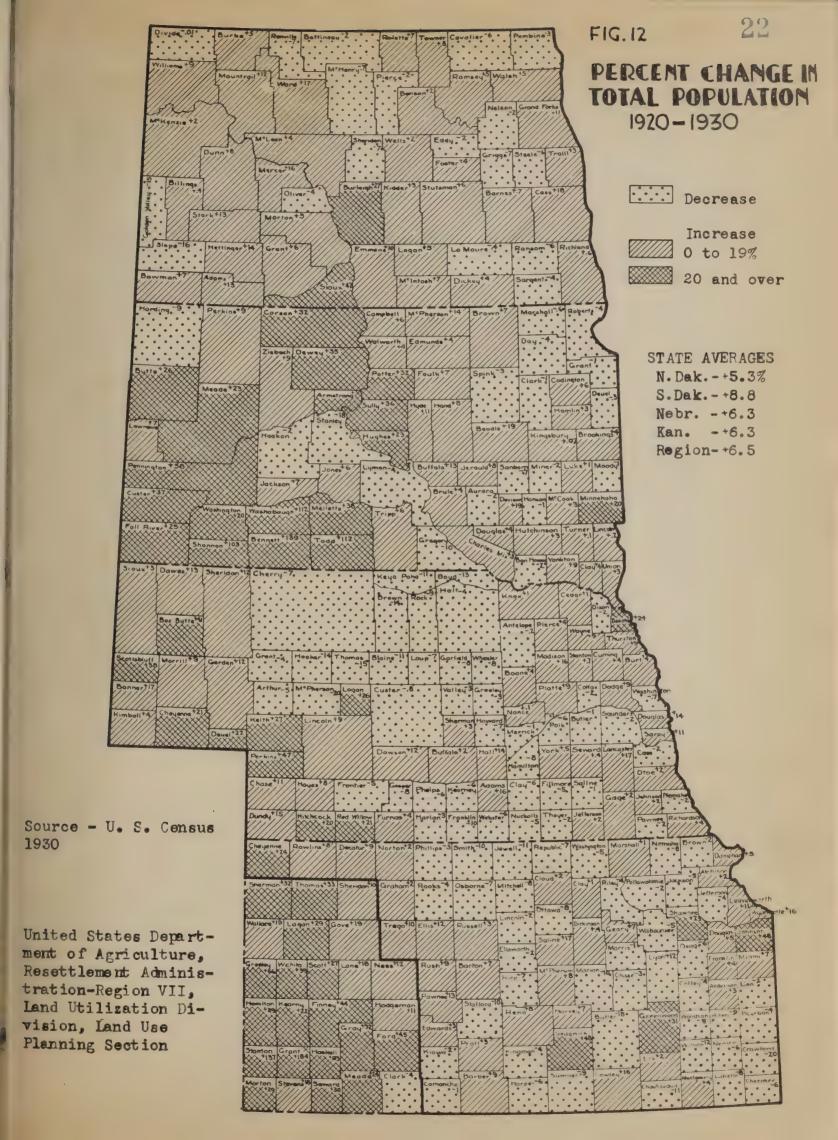
Illiteracy involves no particular problem in the region, but is noteworth mainly because it is so low. The regional average is 1.2 per cent. There are only 12 counties having over 5 per cent illiteracy and Indian reservations are located in every one except Emmons county, North Dakota, and Scottsbluff county, Nebraska.

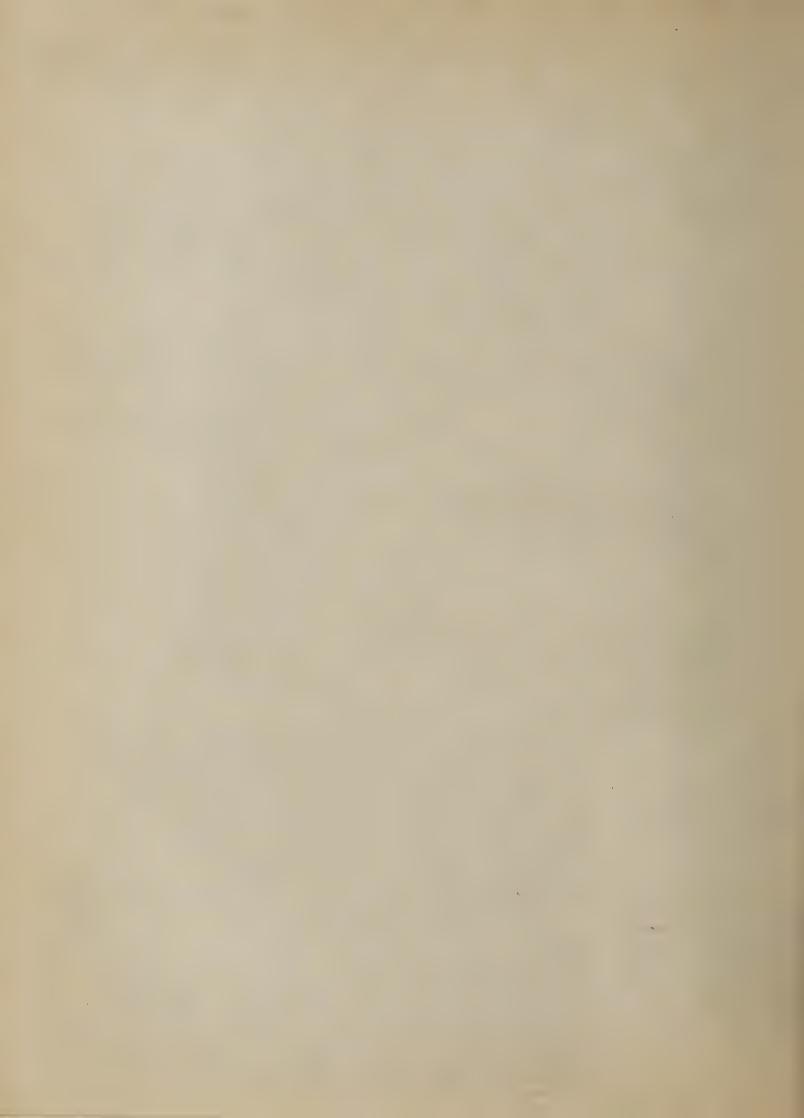
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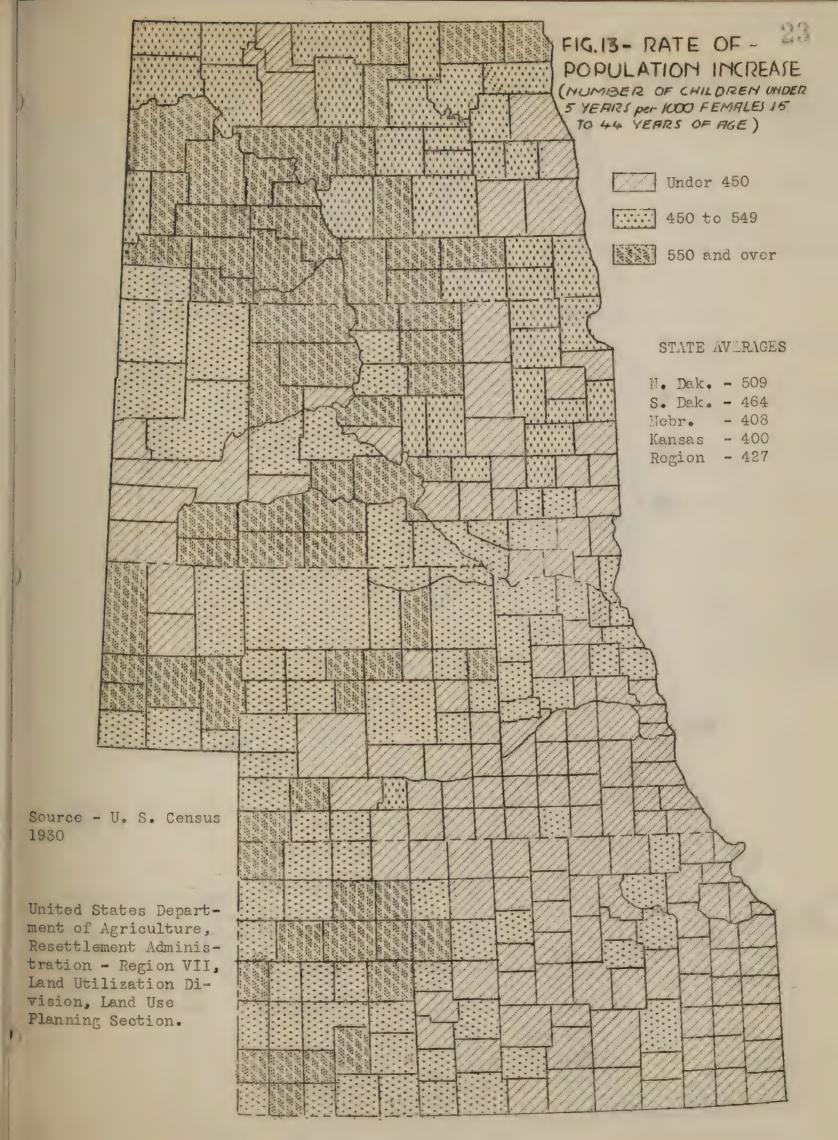
Source - U. S. Census

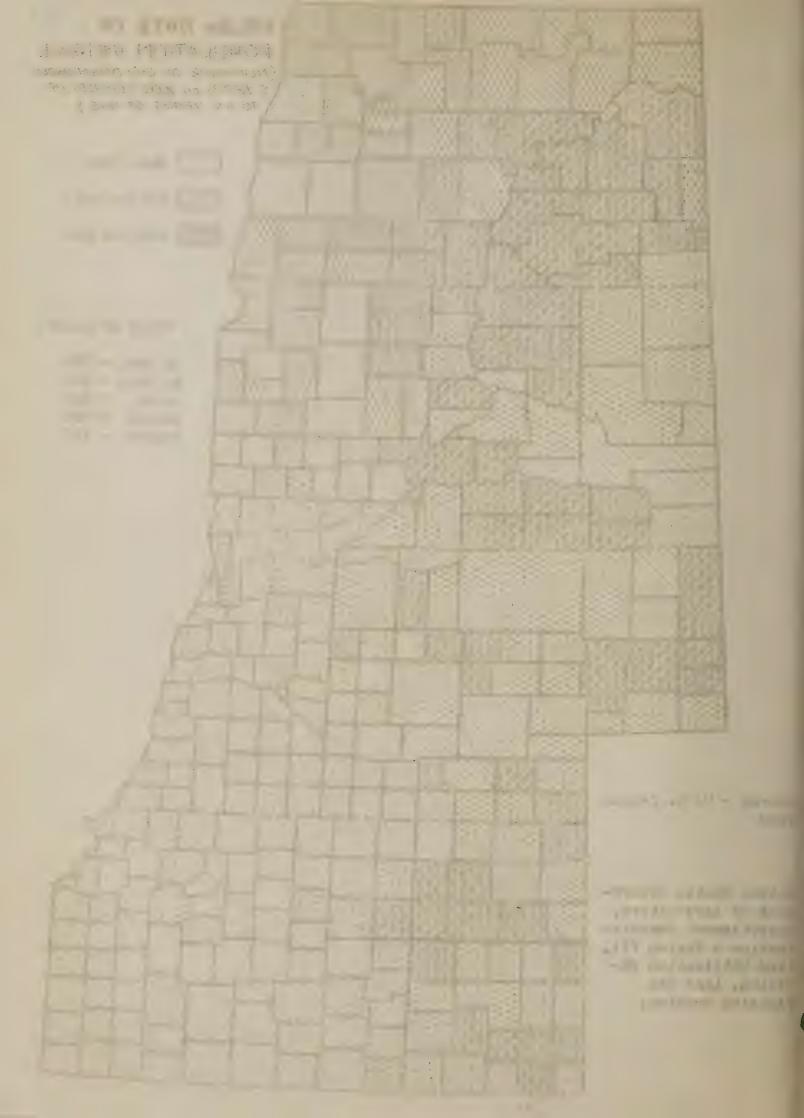
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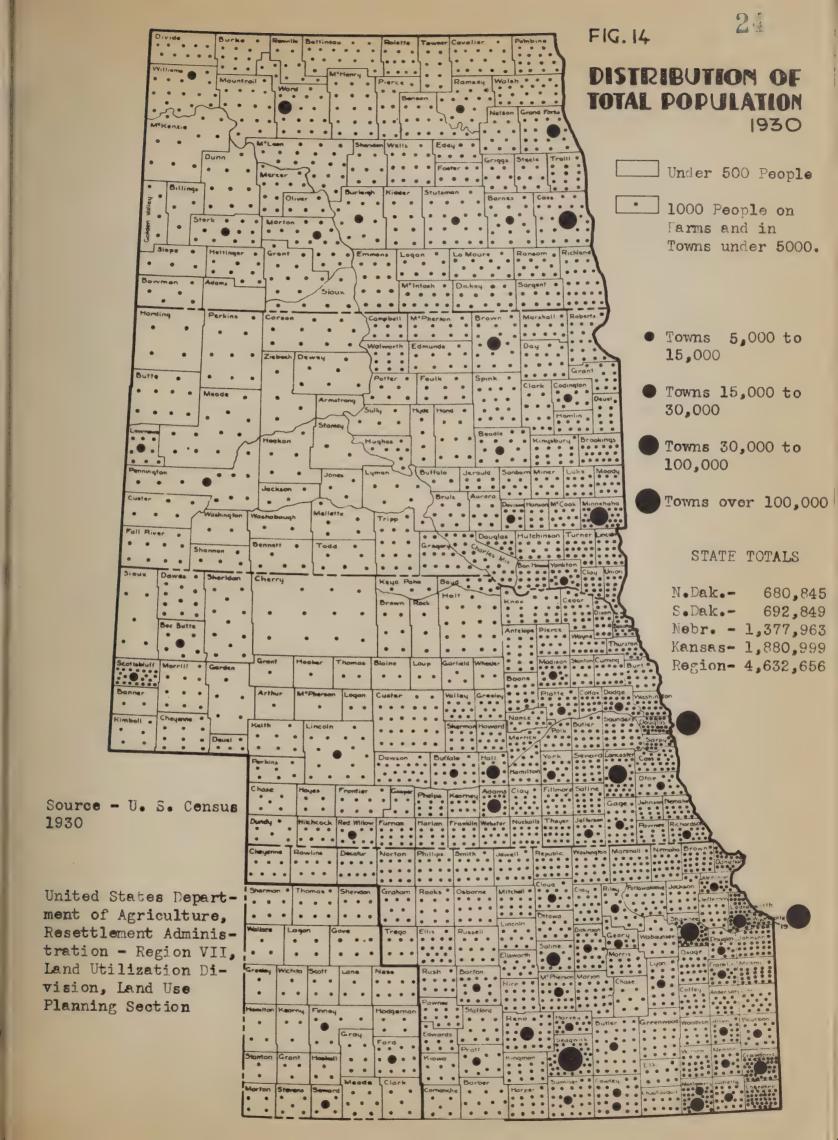


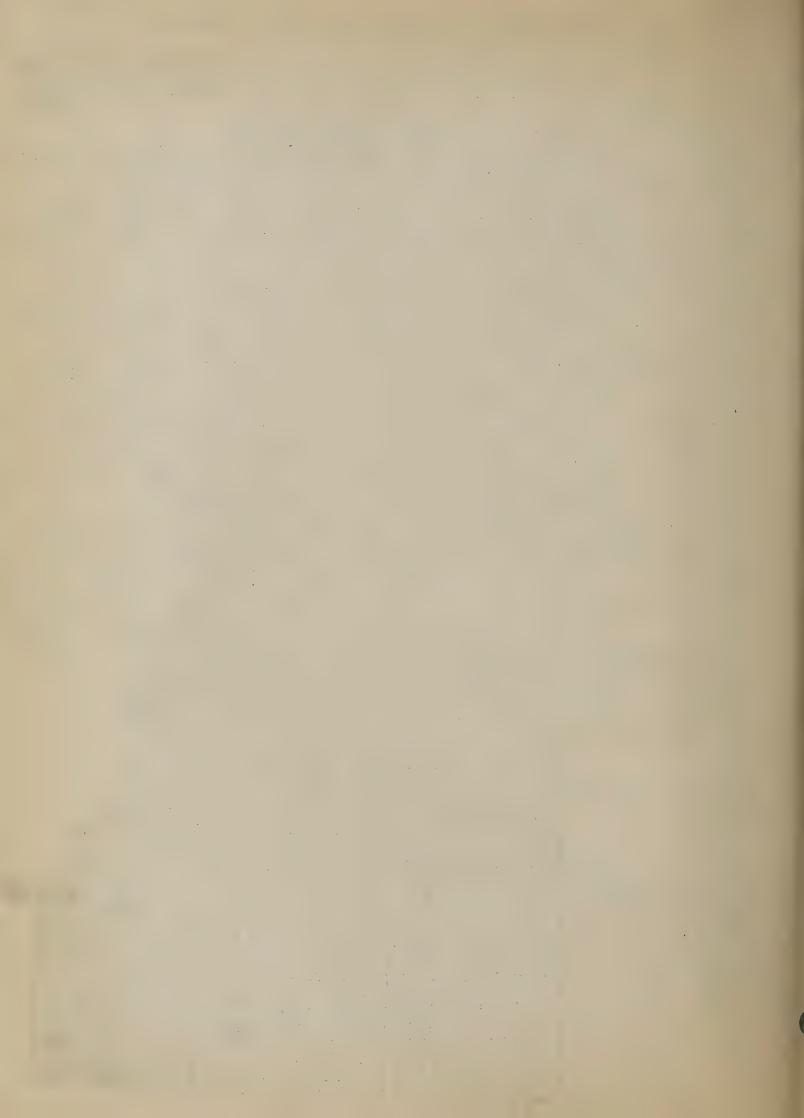


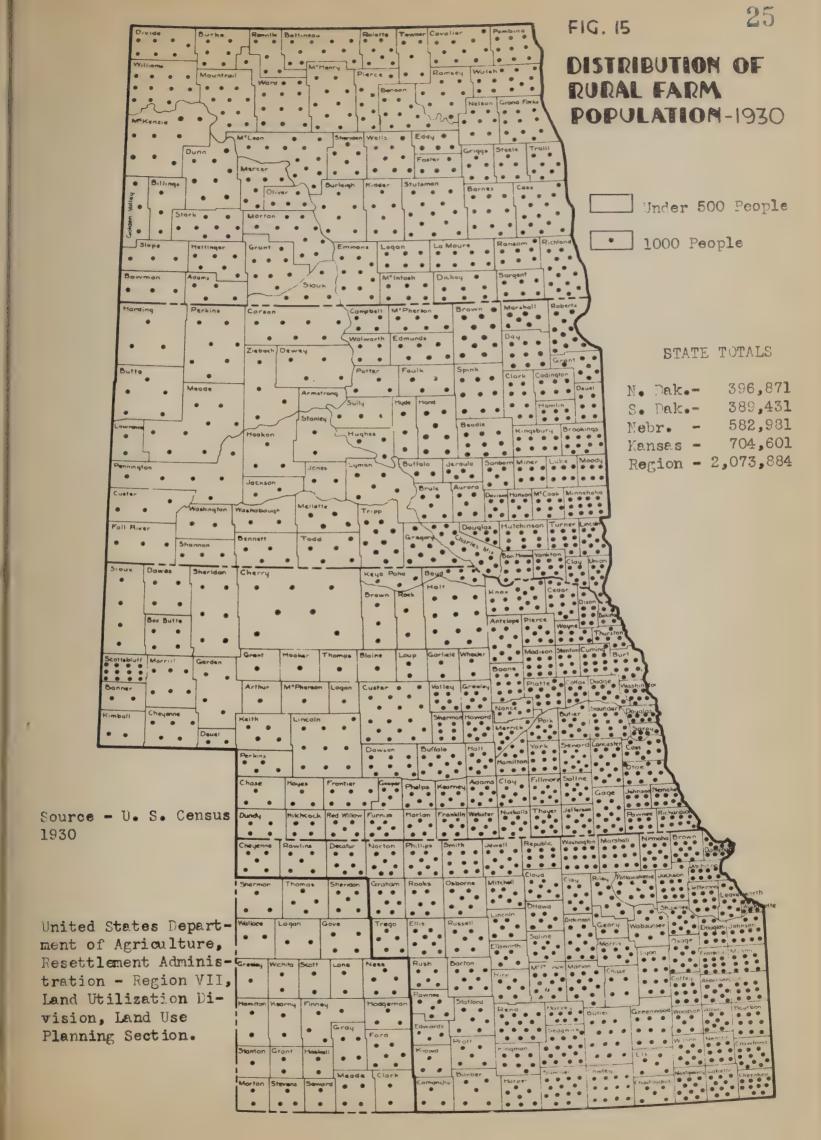




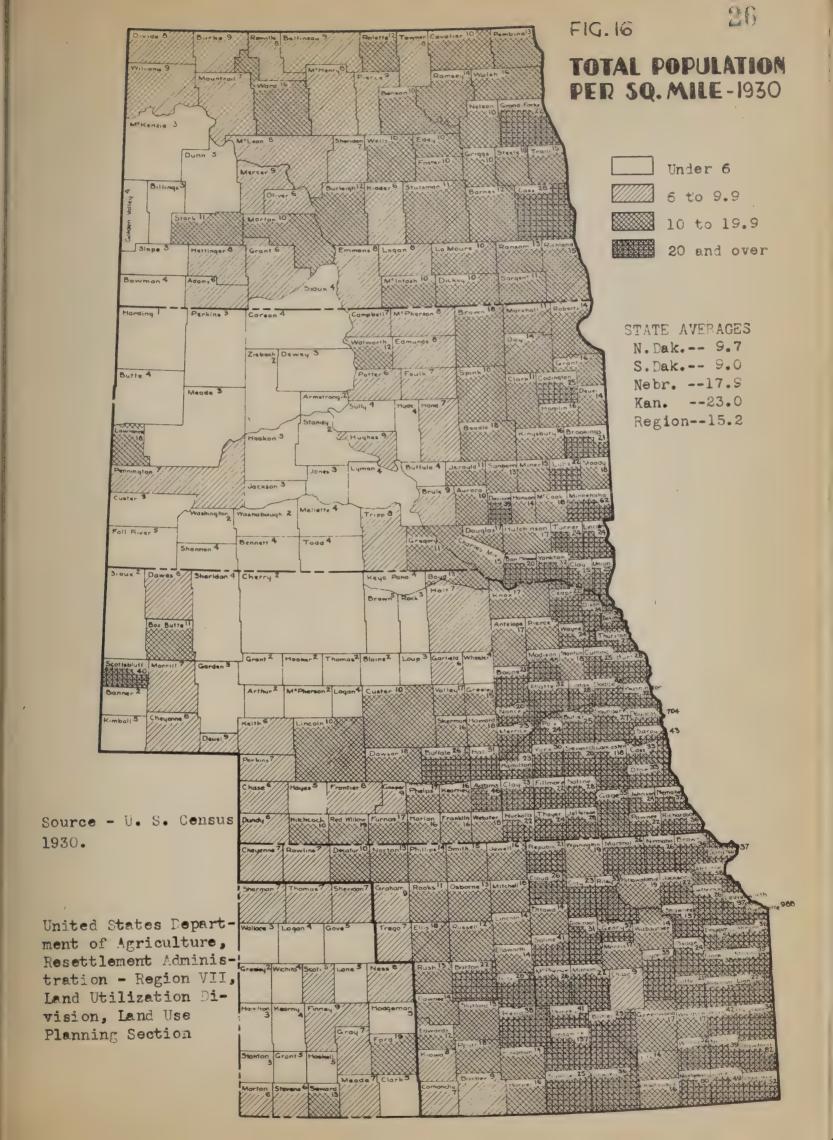


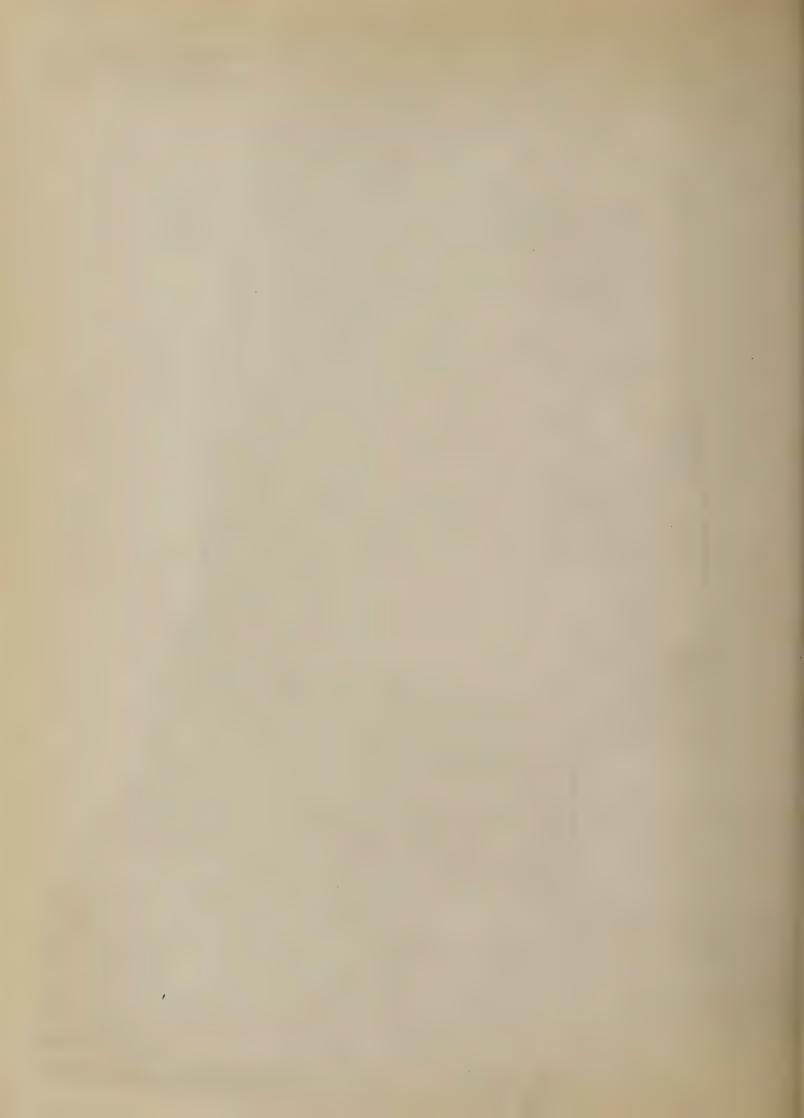


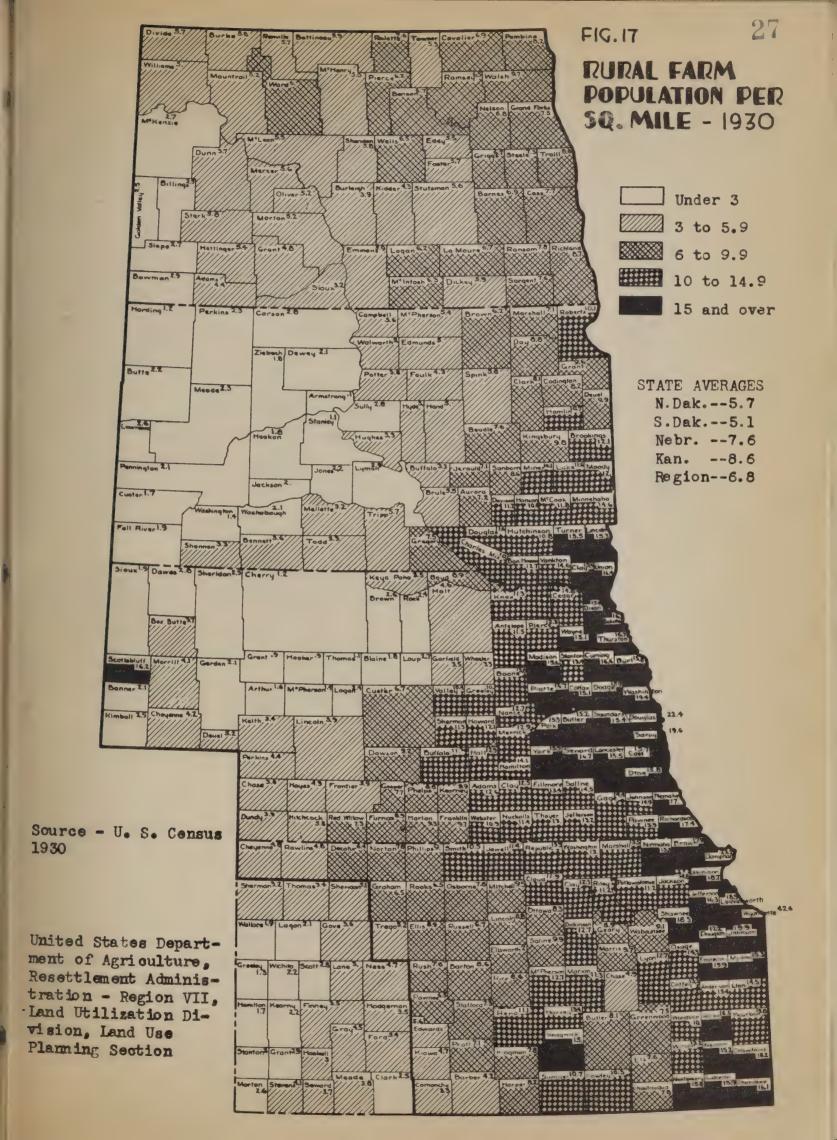




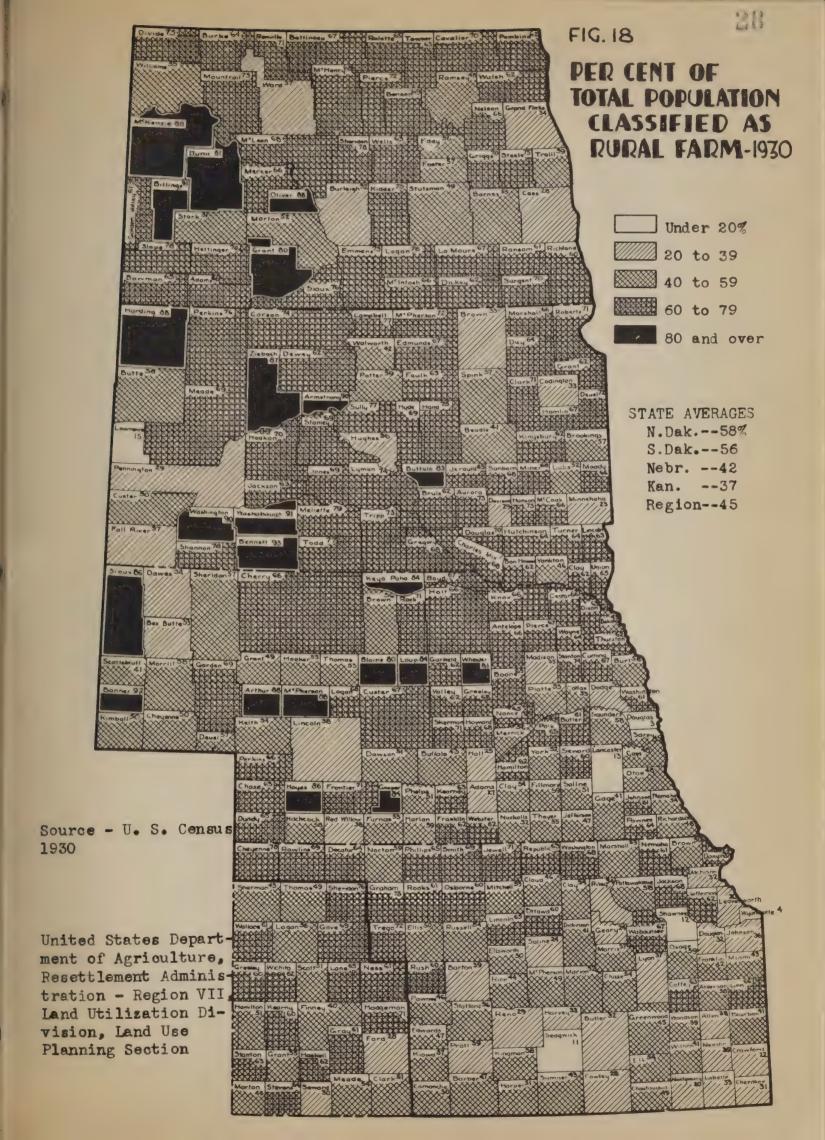




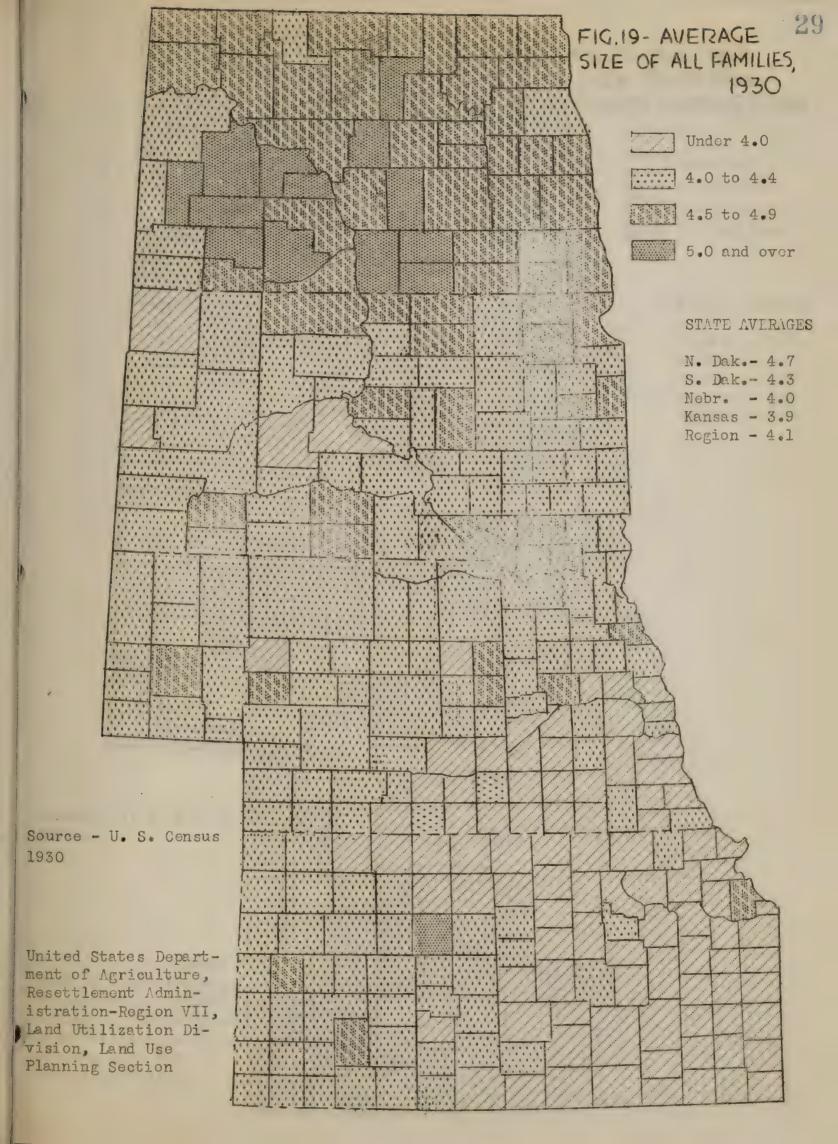




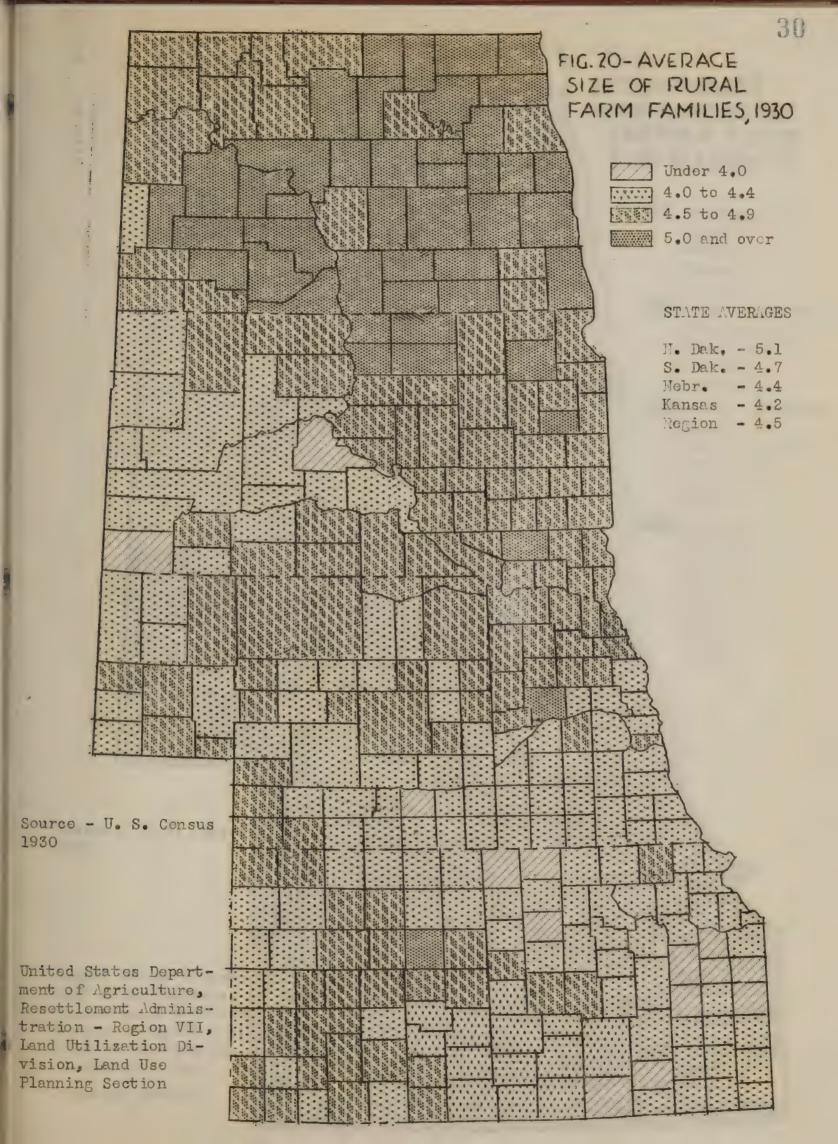


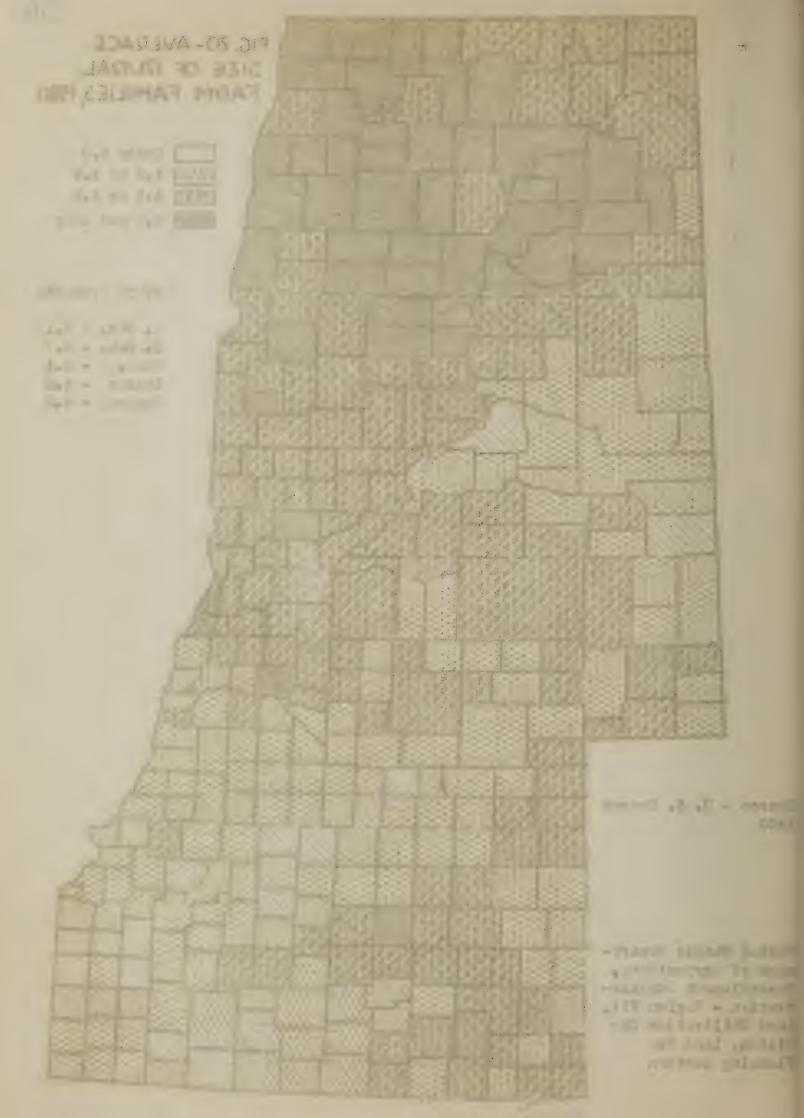


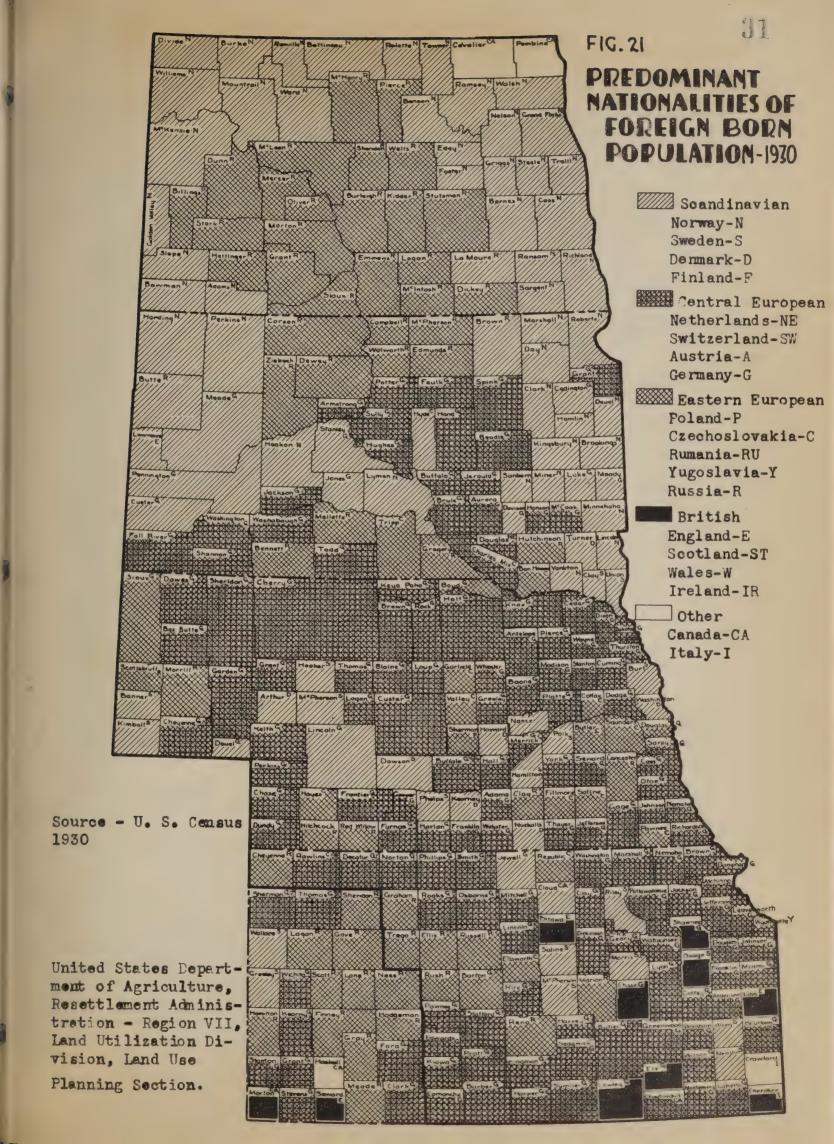




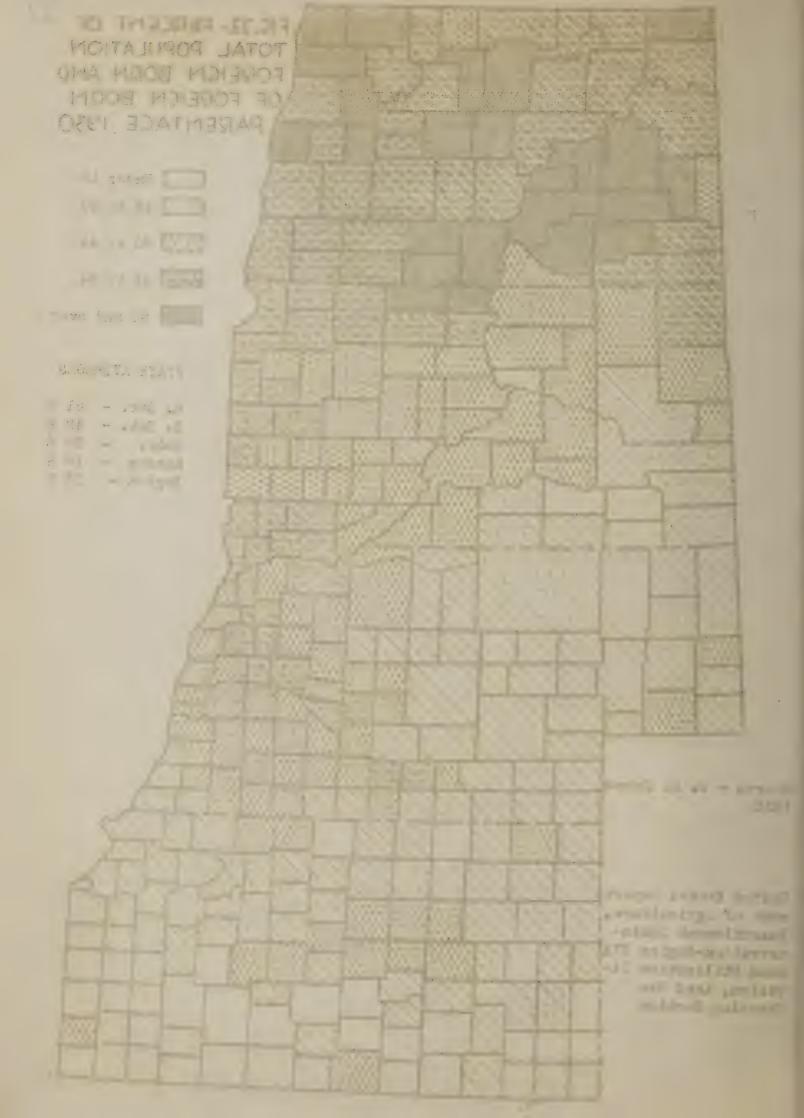


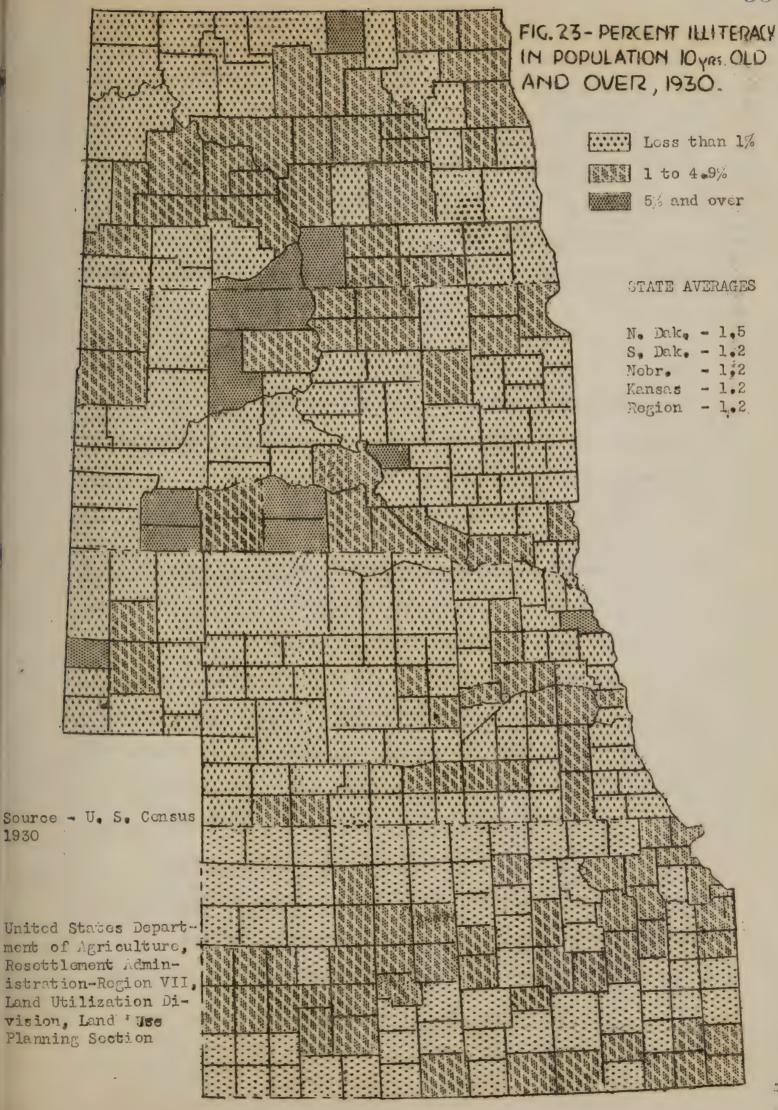


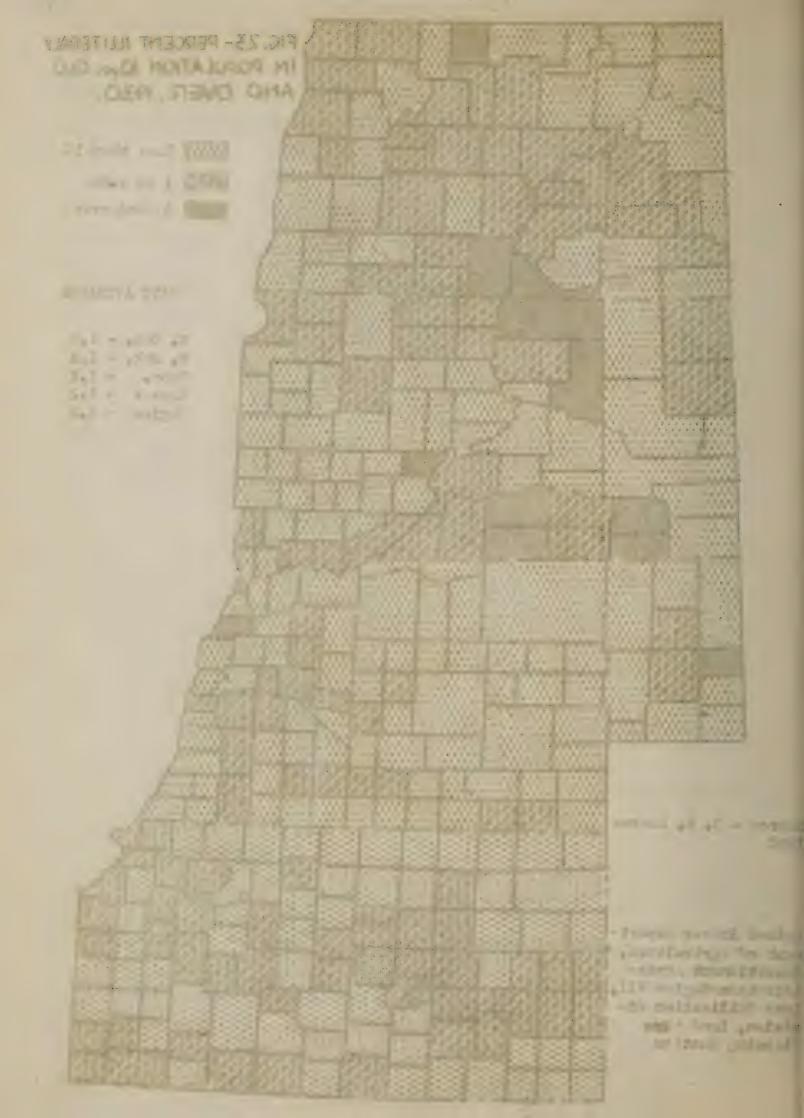












#### ECONORIC FACTORS

It is the purpose of this section to consider some of the commic developments that have occurred as a result of the people's efforts to utilize nature's resources. Maps dealing with the agricultural phases of tenure, real estate, income, and land utilization are considered in turn.

#### Tenure

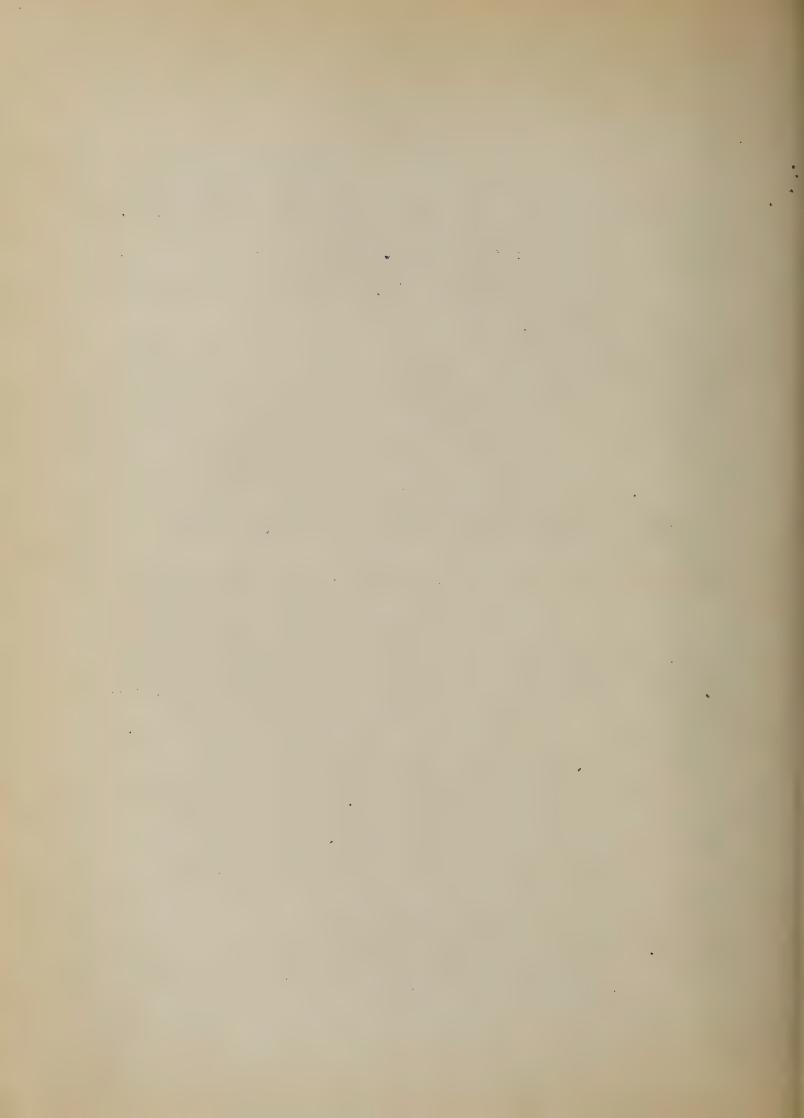
The consideration being given to problems arising from the present tenure system warrants a study of the existing situation in the region. Only some of the more general facts concerning types and length of tenure, regarded as most significant, are given.

Farms Operated by Tenants, Part-Owners and Owners, Figures 24 t 27

The trend in per cent of farms operated by tenants, partewmers, and full ewmers between 1900 and 1935 is shown by figure

24. There has been some decrease in the number of full ewmers, replaced by a corresponding increase in tenants in Kansas, Nebraska,
and South Dakota. However, in North Dakota, full-ewmers have tended
to become part-ewmers rather than tenants. A few farms, not otherwise accounted for are operated by managers.

In 1935 tenants operated 45 per cent, part owners 22 per cent, and full owners 32 per cent of the farms in the region, figures 25 to 27. Tenancy is generally higher than average in southeastern North Dakota, eastern South Dakota, and west central, northeastern



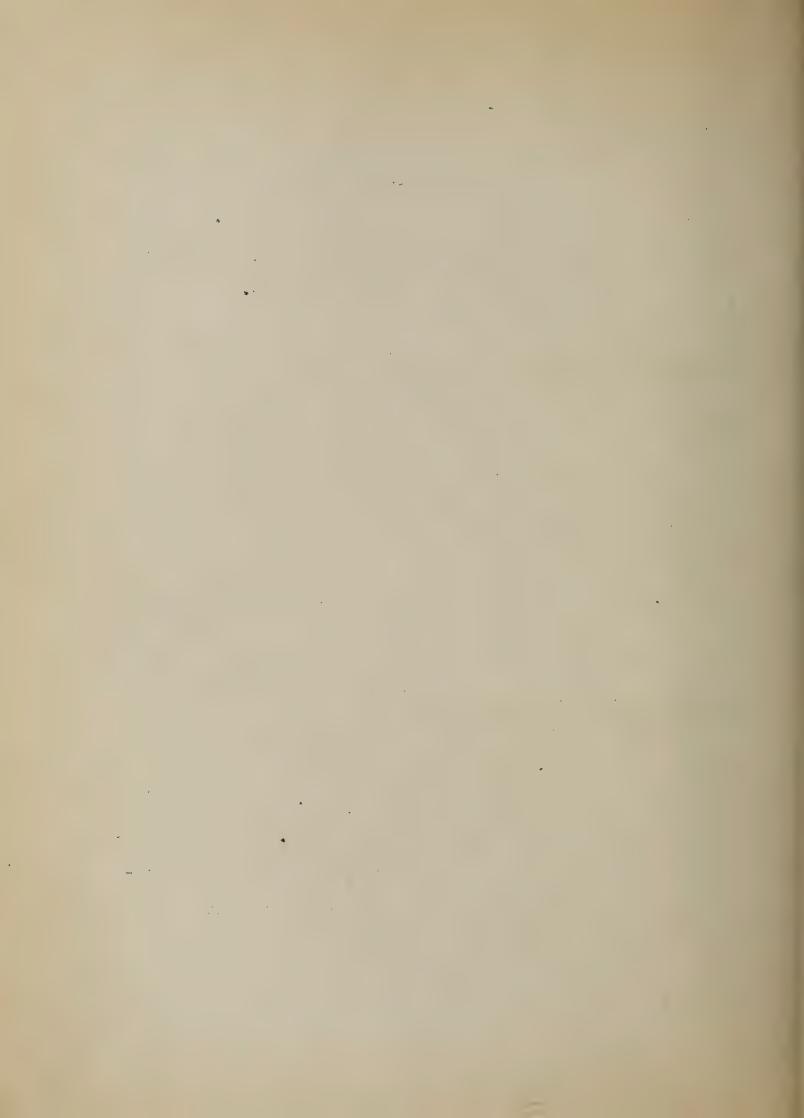
and southeastern Nebraska. The areas of lower than average tenancy are located in the western half of the Dakotas, in the sand hills of Nebraska, and in east central Kansas. Full ownership is generally higher than average where tenancy is low and vice versa. Part ownership is most prevalent in southwestern North Dakota, northwestern South Dakota, and the central part of western Kansas.

#### Land in Farms Operated by Temants and Full Owners - Figures 28 and 29

Tenants operate 37 per cent and full owners 22 per cent of the land in farms, or together they control 59 per cent of the farm land in the region, whereas they manage 77 per cent of the farms, figures 25 and 27. In most counties in the eastern portion of the region tenants and full owners control more than 59 per cent of the land in farms, while in the western section they control less than average. Part owners and a few managers operate the remainder of the land in farms not accounted for.

### Land in Farms Operated Under Lease - Figure 30

operated under lease. This percentage includes all land operated by tenants plus all land leased by part owners. In individual states this figure varies from 53 to 62 per cent. The ratio is relatively high where tenancy prevails but because of the large proportion of land leased by part owners, it is also relatively high in most of the west river area of the Dakotas and southwestern Kansas.

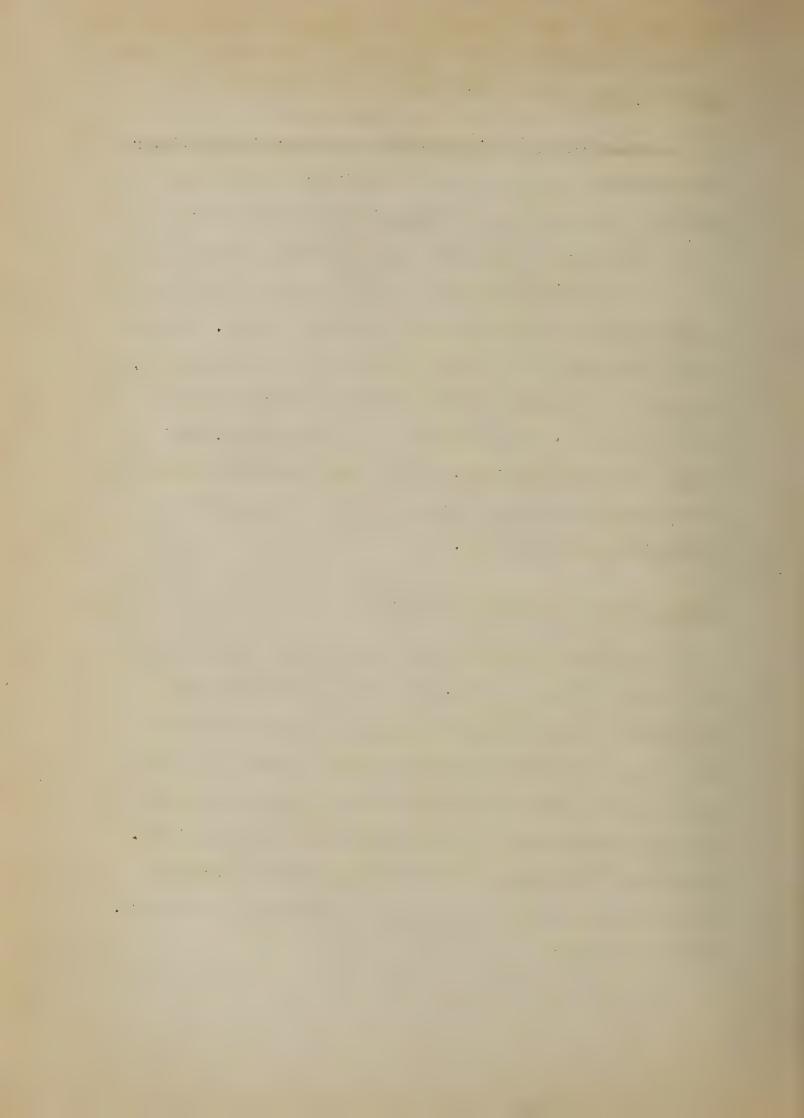


#### Length of Tenure - Figures 31 to 34

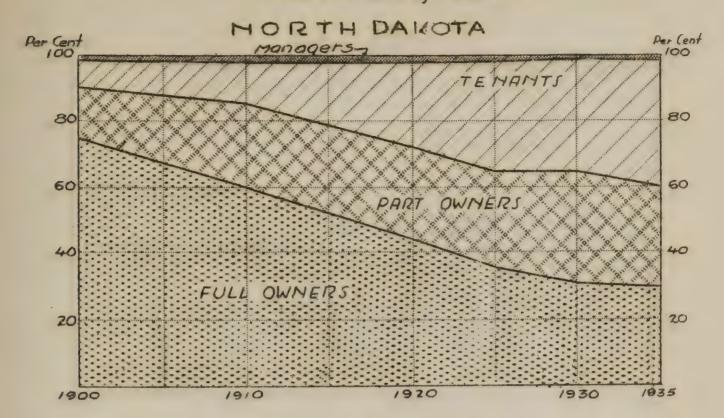
cont of the full owners have been on their present farm 15 or more years and 81 per cent have occupied the same farm for 5 or more years. On the other hand only 42 per cent of the tenants have occupied their present farm 5 or more years and 33 per cent reported being on their present farm less than 2 years. The state averages vary only a few per cent from the regional percentages, but there are noteworthy differences between particular areas within the states. The west river area of the Dakotas, north central and western Nebraska, and the southeastern and central western portions of Kansas, are areas with the shortest tenure of owners as well as tenants.

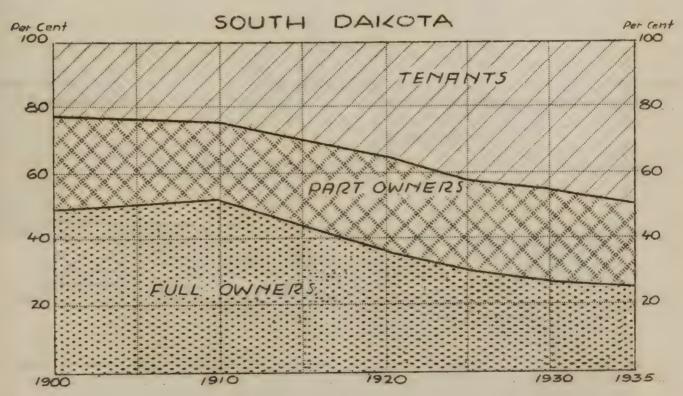
### Tenants Related to Landlords - Figure 35

Approximately 30 per cent of the tenants in the region are related to their landlord. The average for southern and east central Nebraska and central Kansas is considerably higher than 30 per cent, while the average for the western half of the Dakotas, north central and western Nebraska, and central western and southeastern Kansas, is considerably lower than this figure. Areas having few tenants related to their landlords correspond very closely with those areas having a comparatively short tenure, figures 31 and 34.



# FIG. 24 - TREND IN PER CENT OF FARMS OPERATED BY FULL OWNERS, PART OWNERS, TENANTS AND MANAGERS, 1900-1935



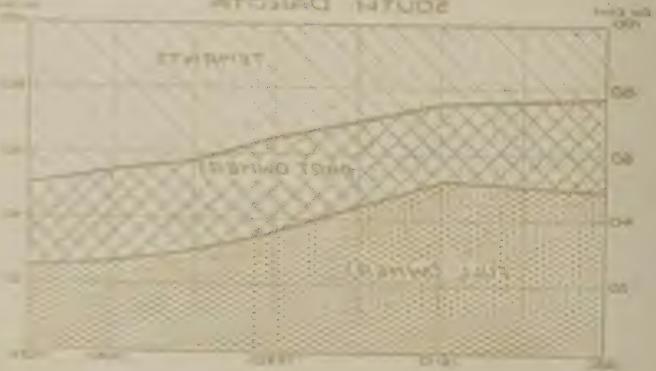


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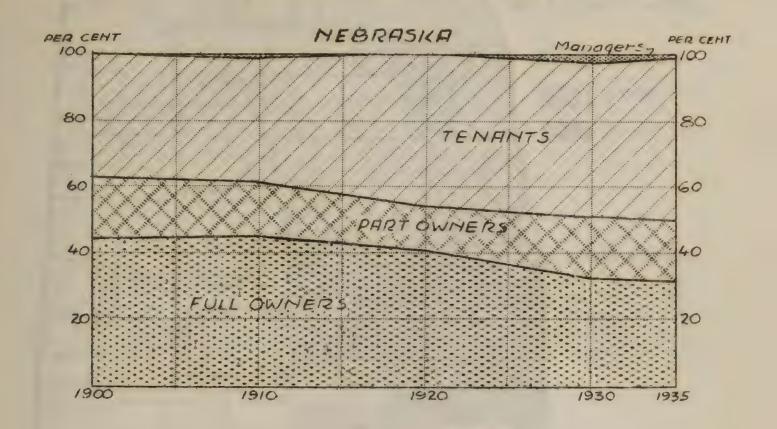


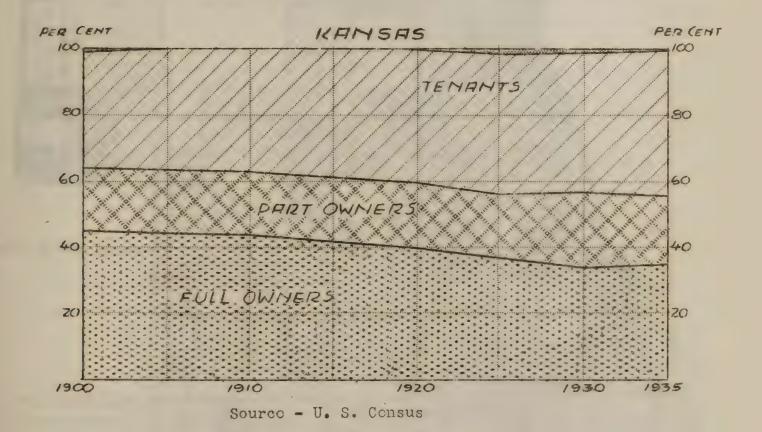


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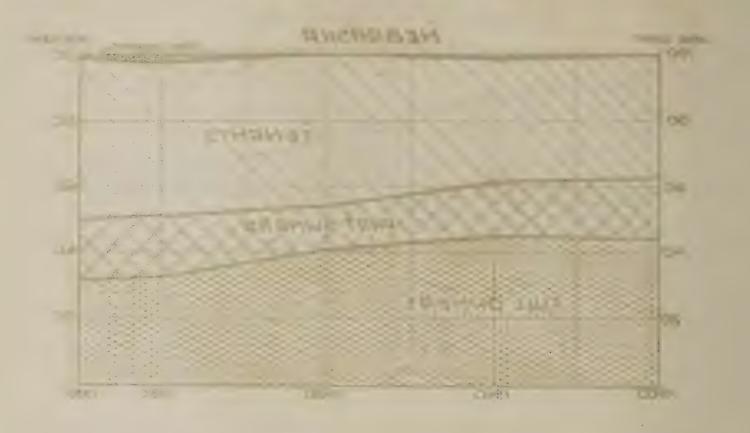
# FIG. 24 - TREND IN PER CENT OF FARMS OPERATED BY 38 FULL OWNERS, FART OWNERS, TENANTS AND MANAGERS, 1900-1935

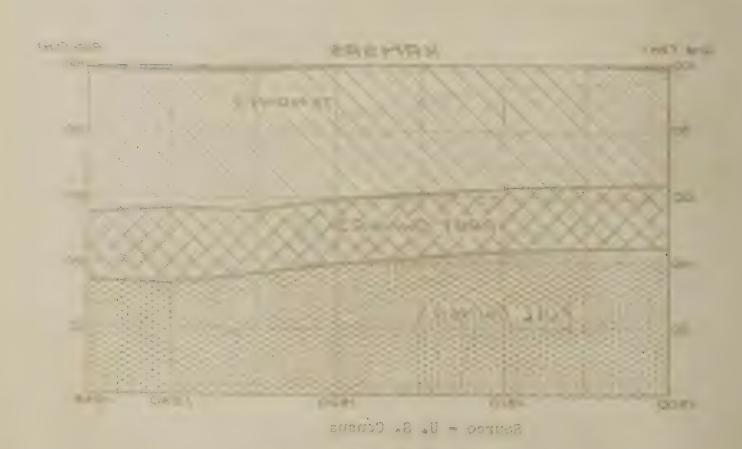




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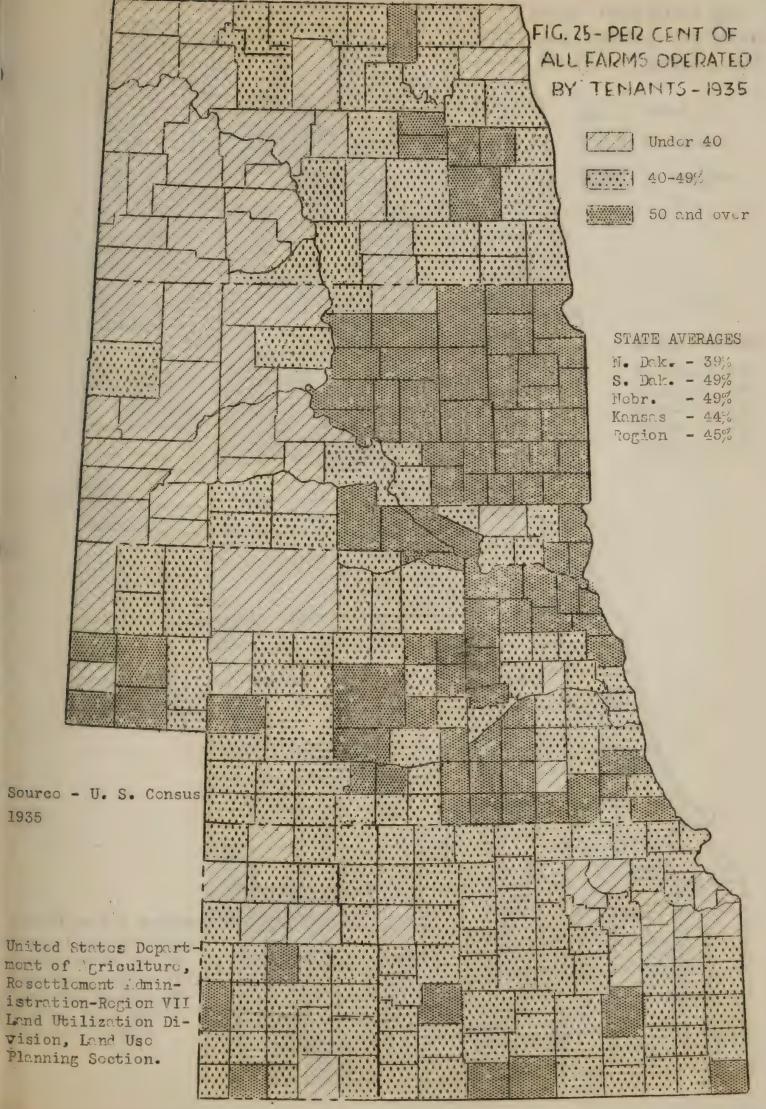


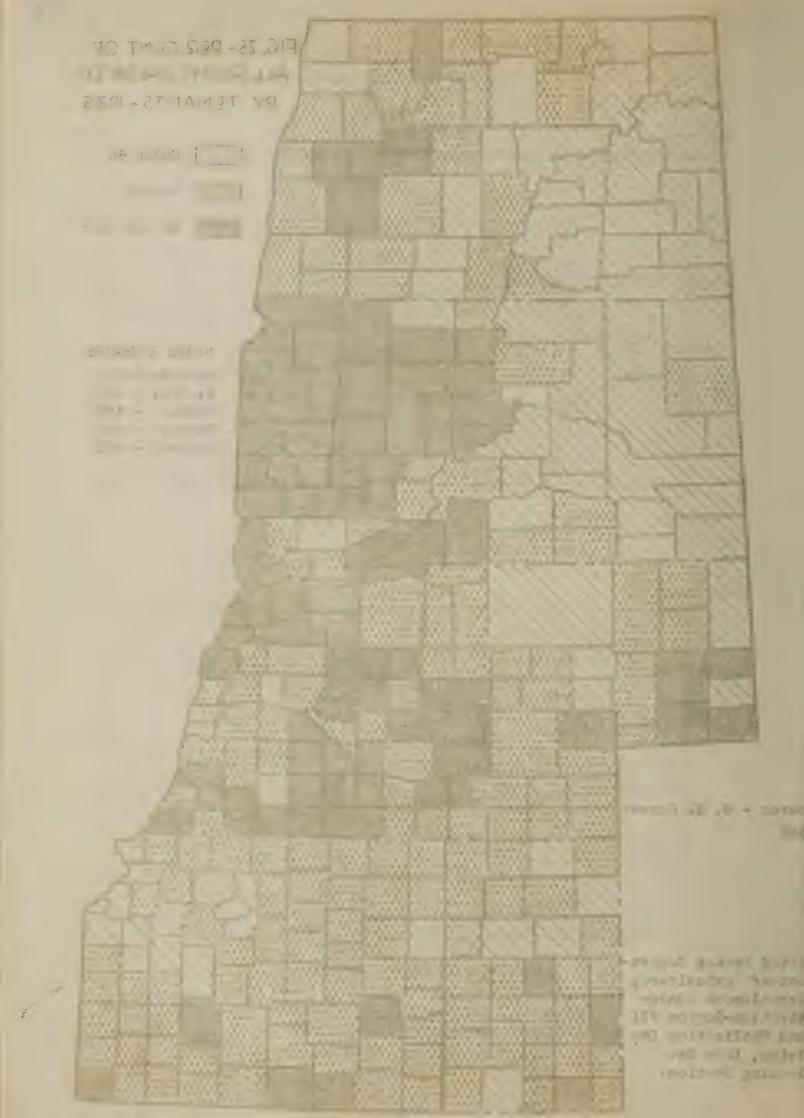
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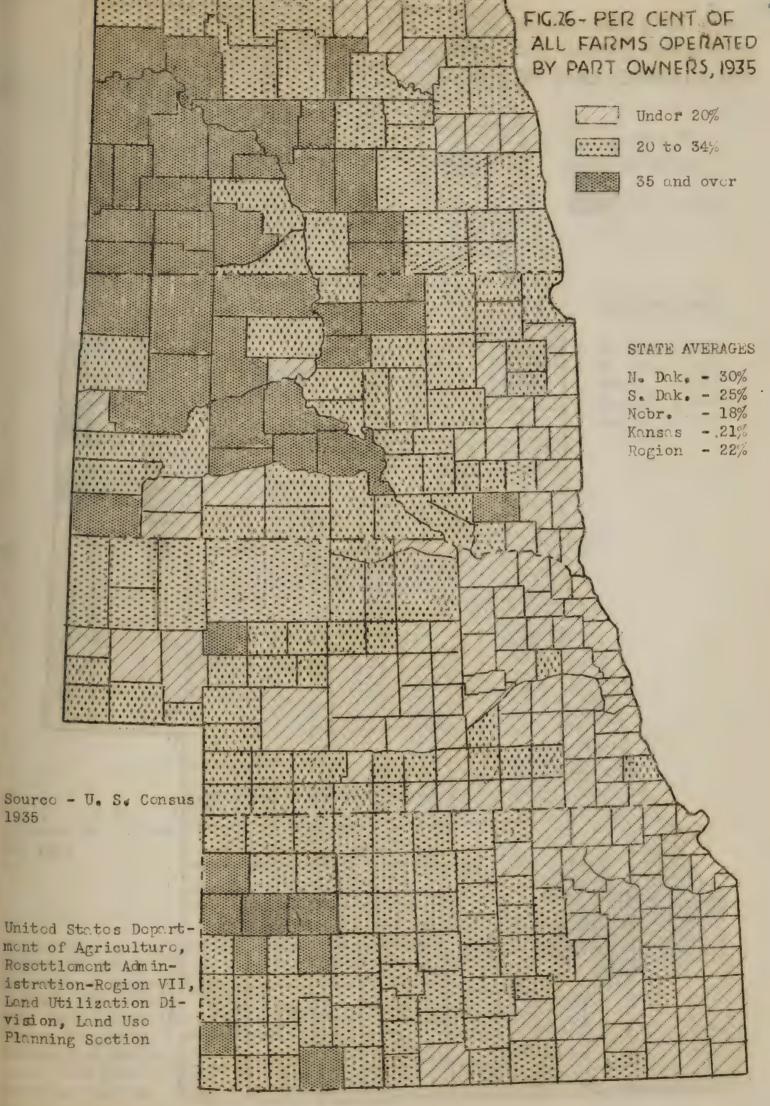
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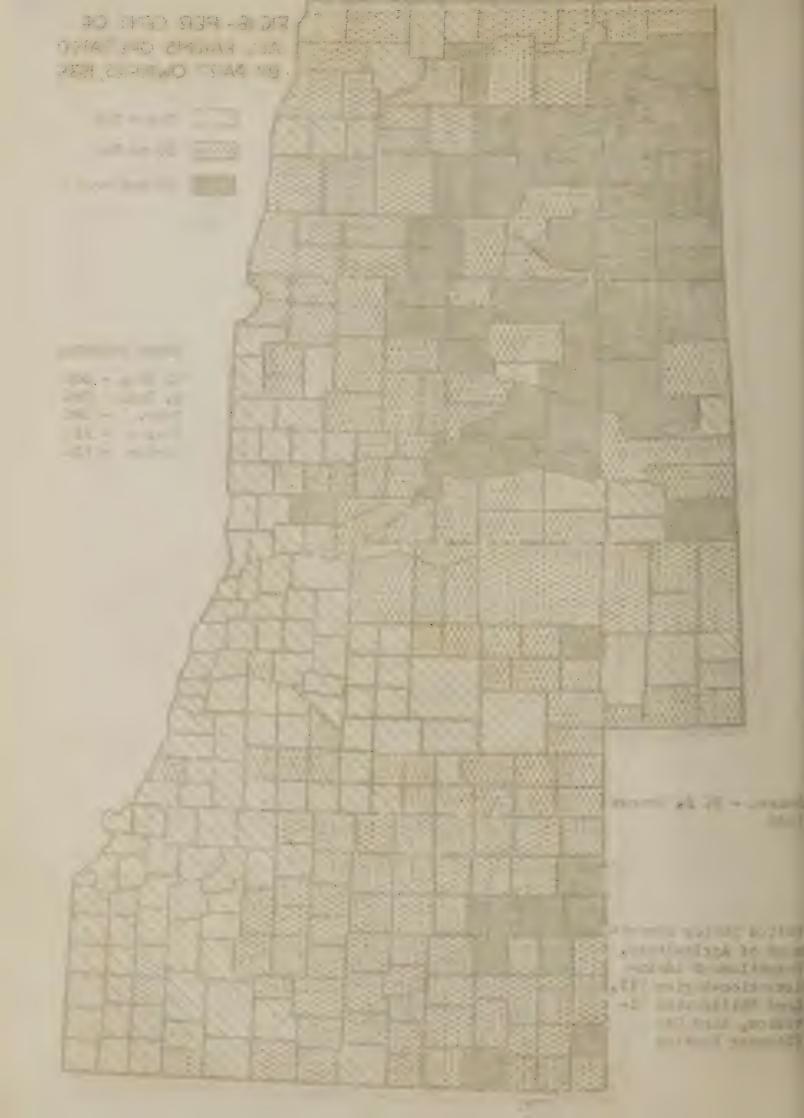
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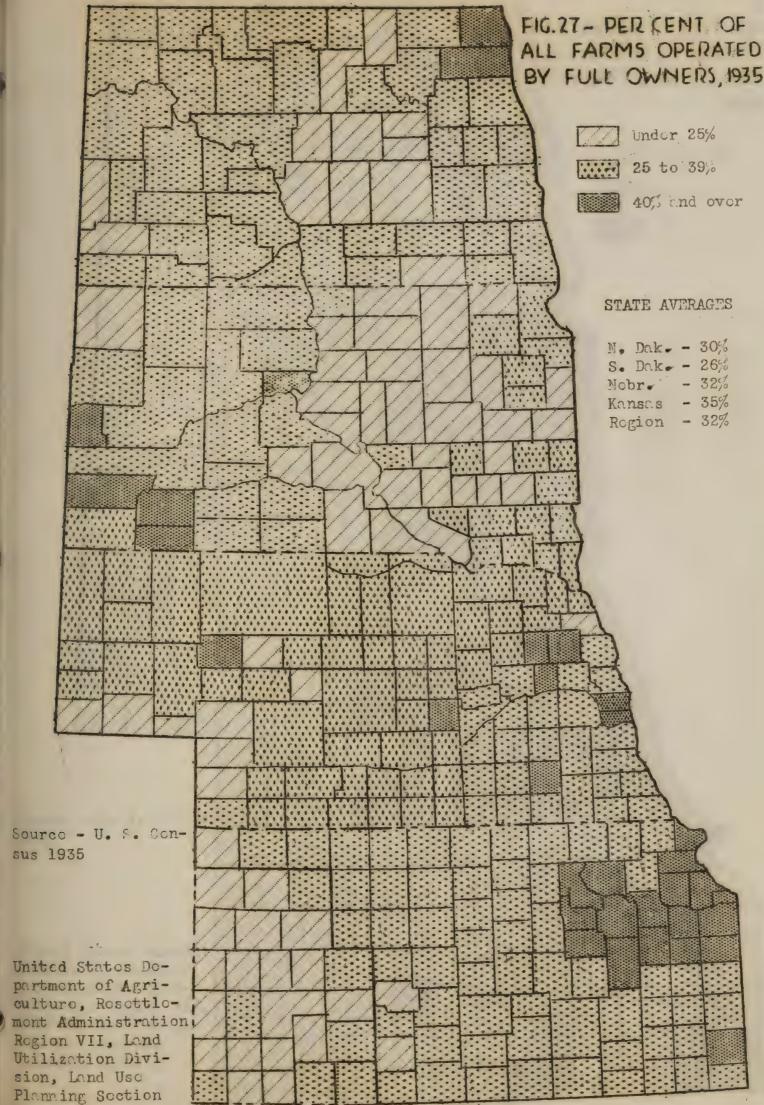
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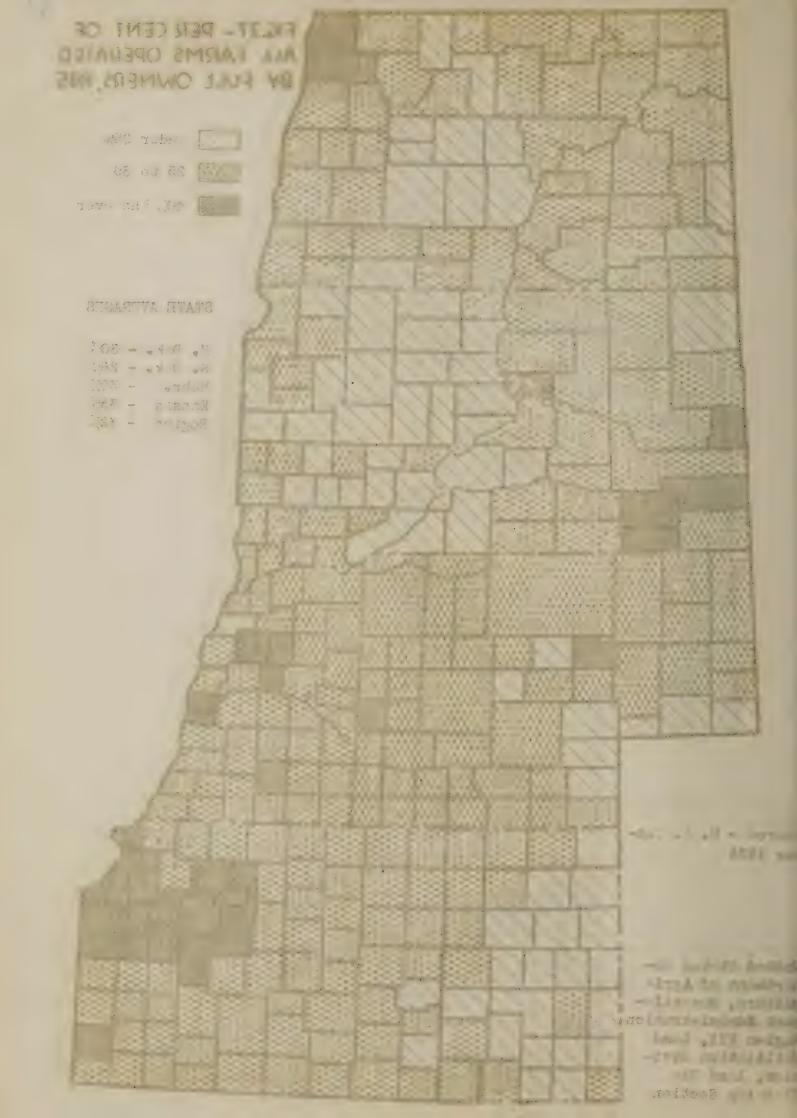


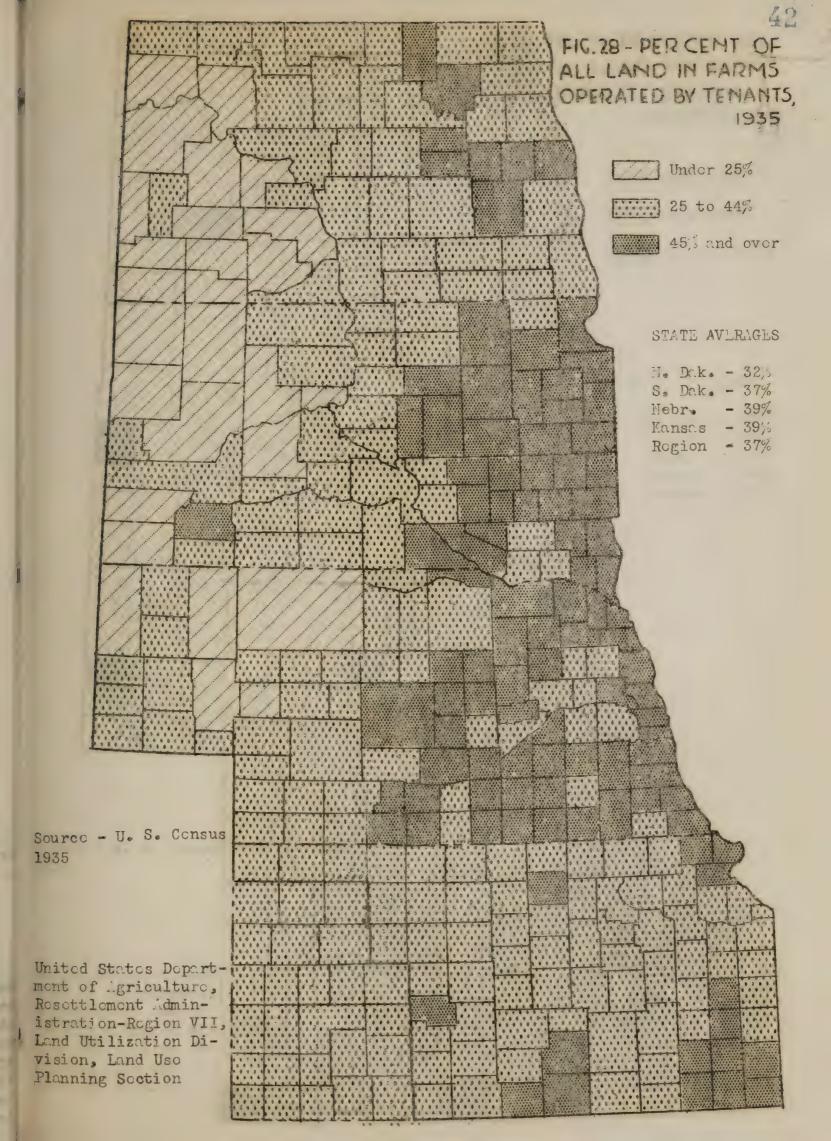




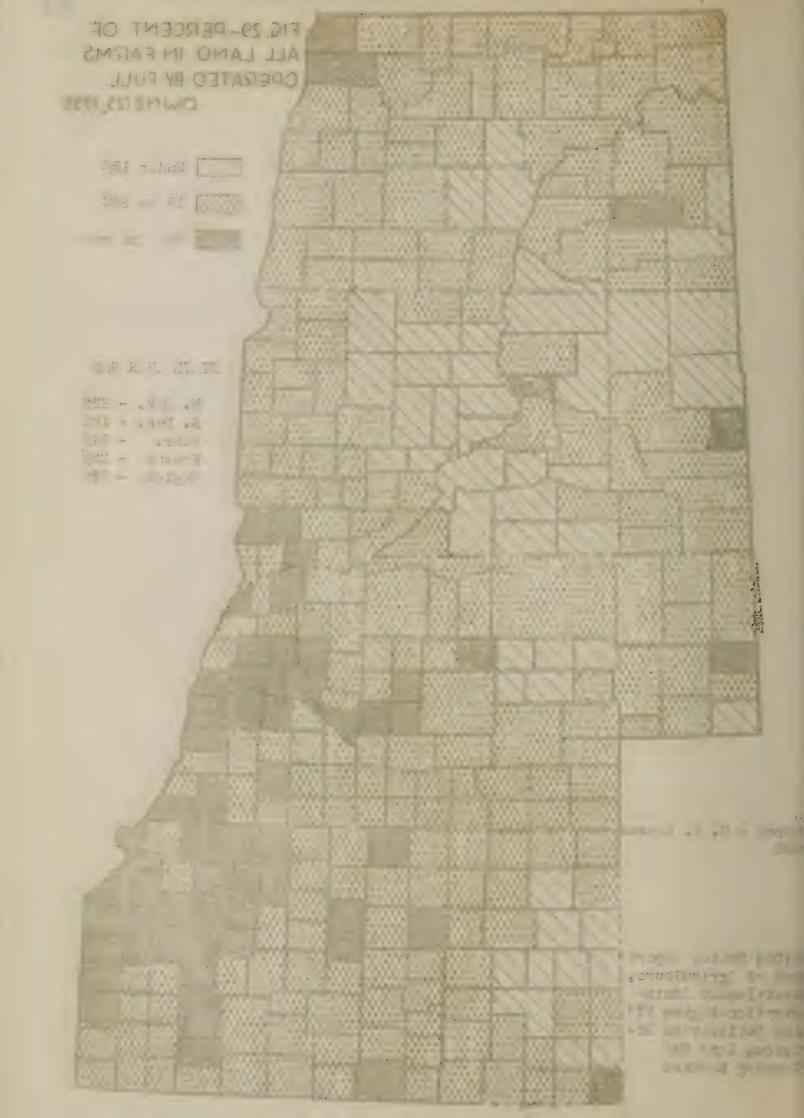


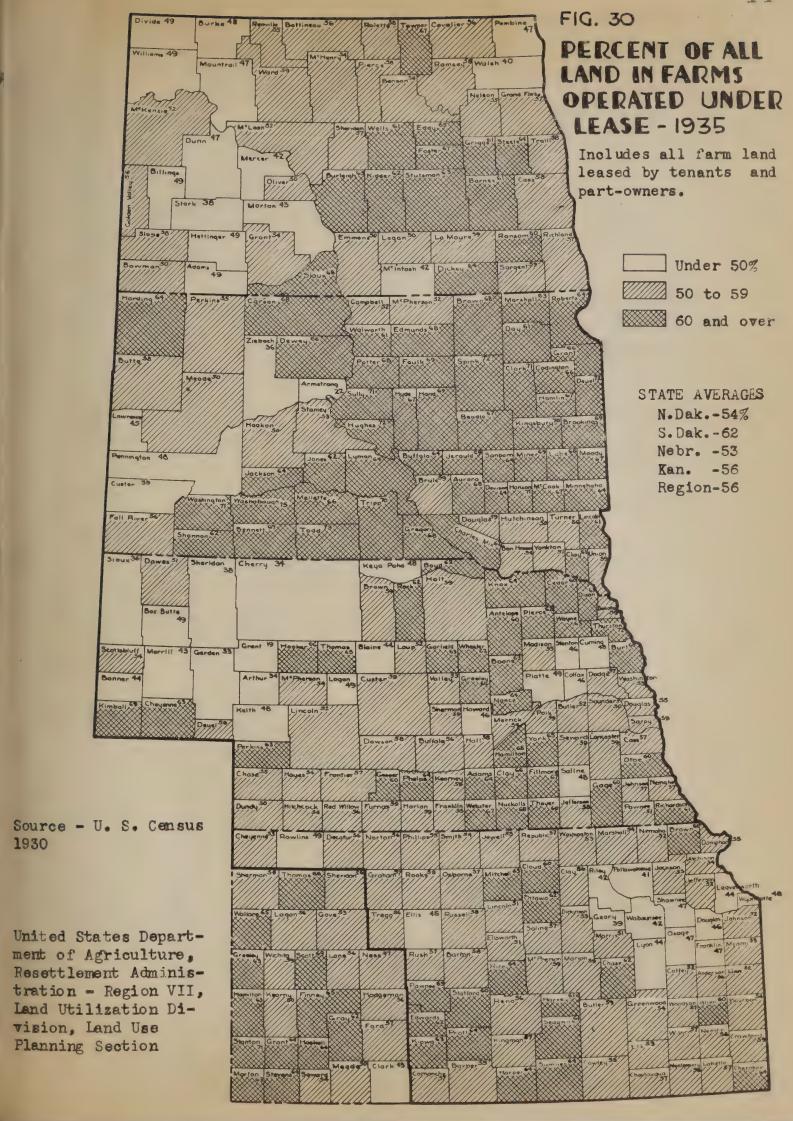


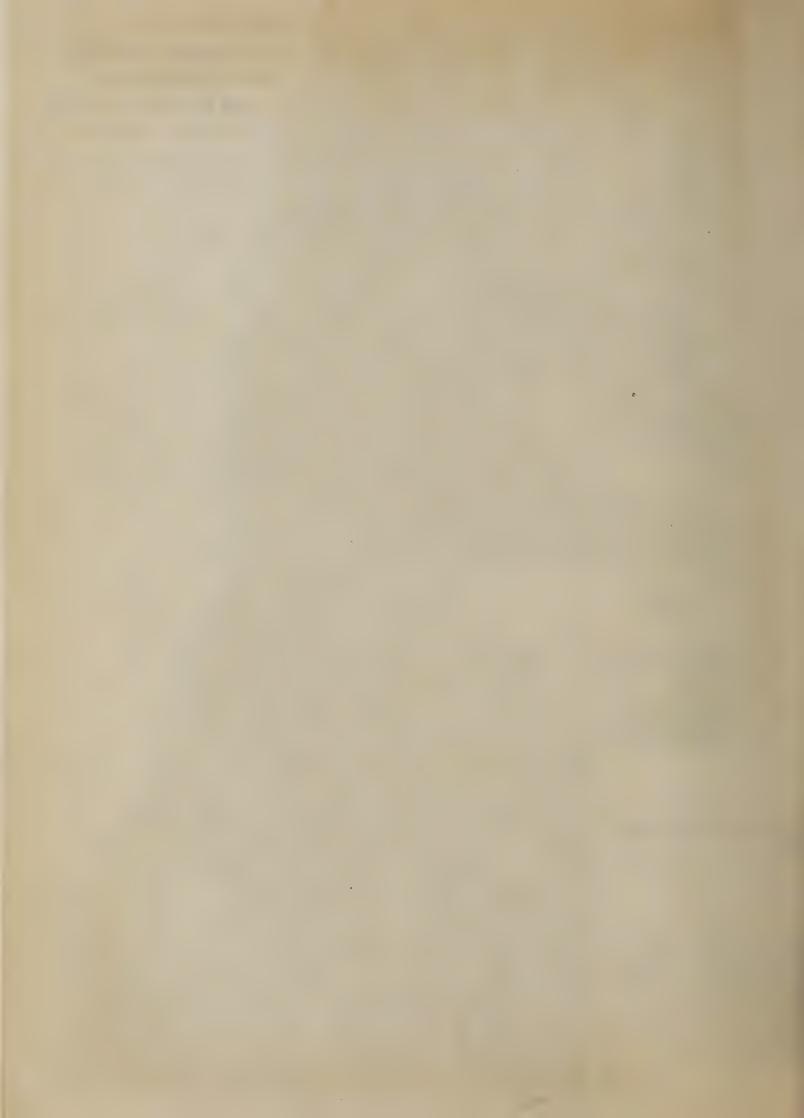


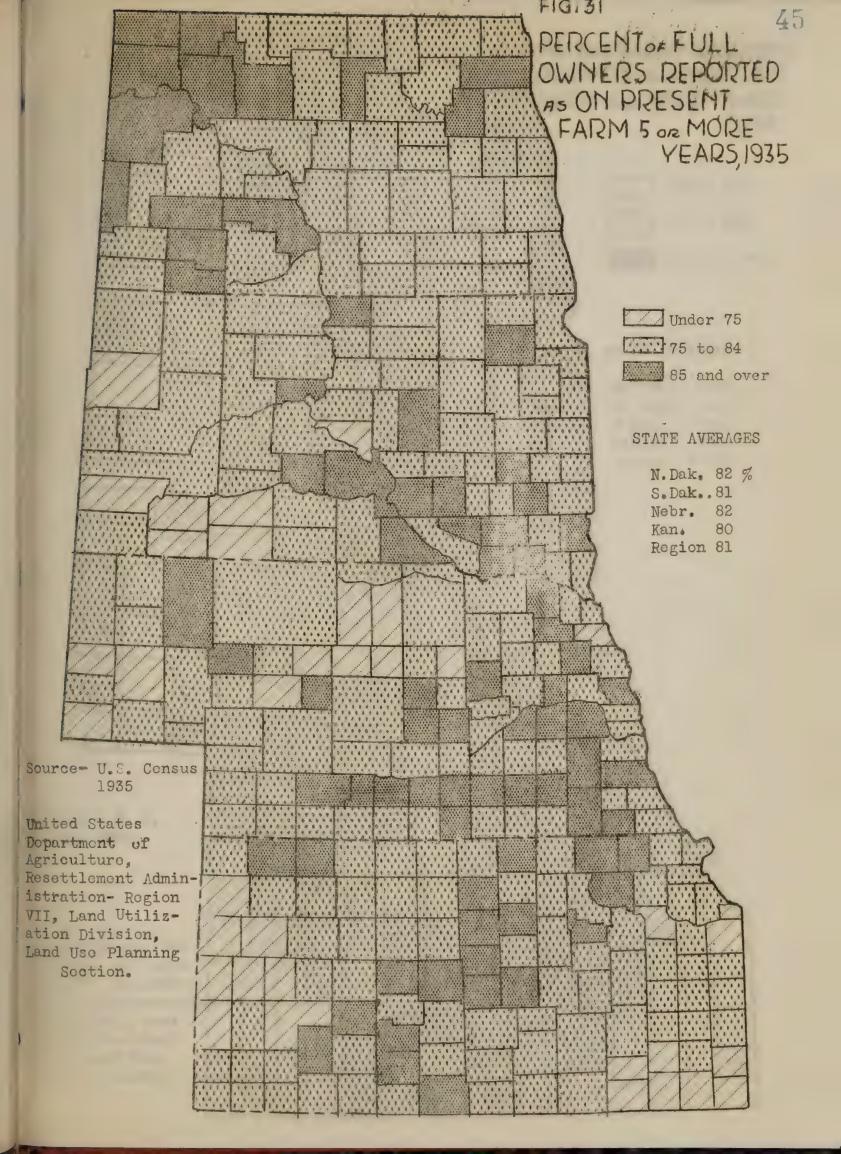


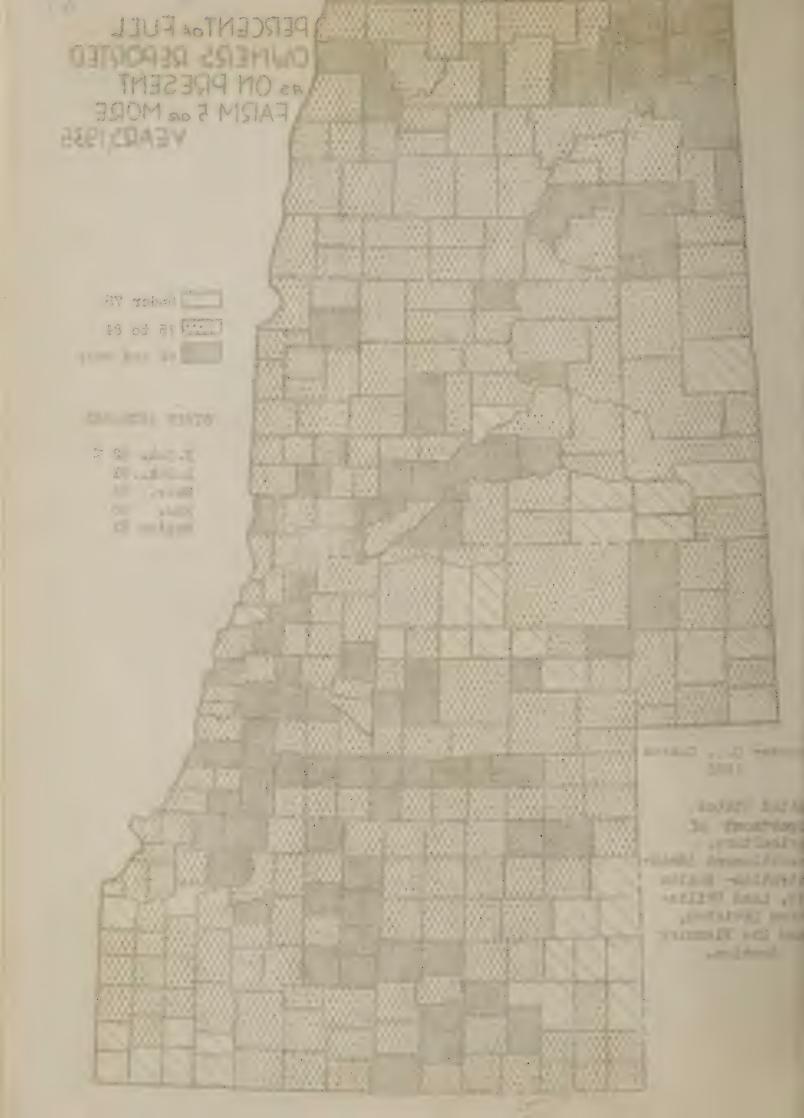


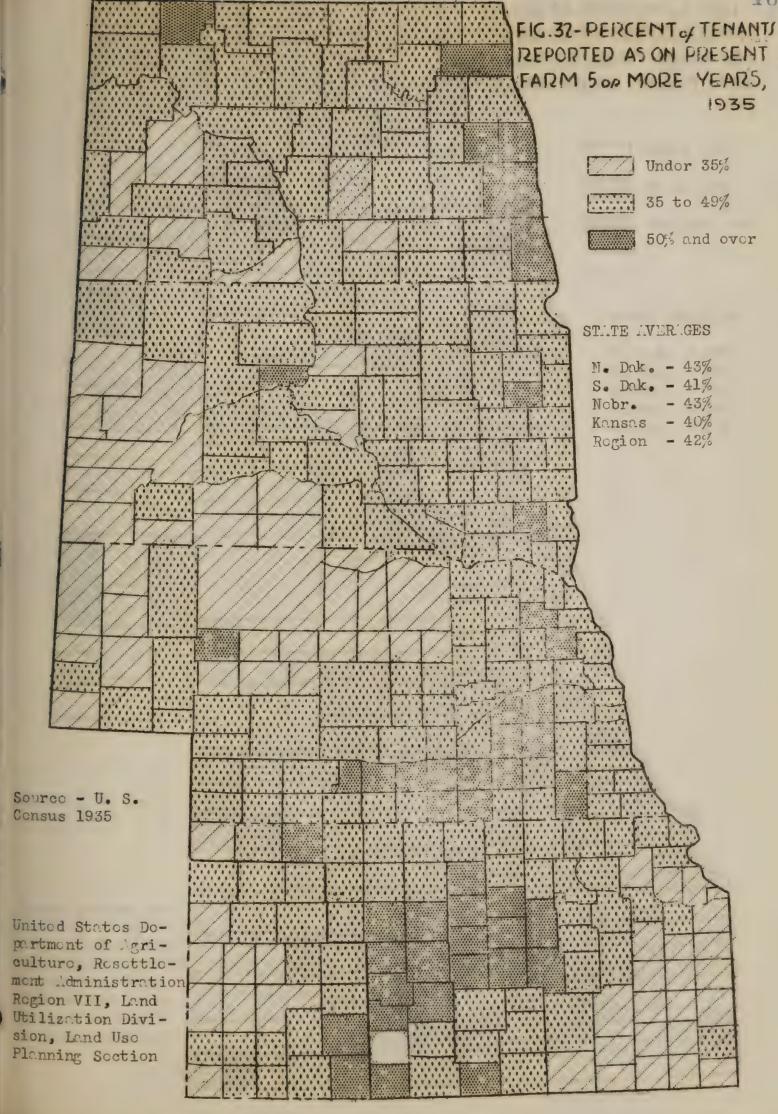


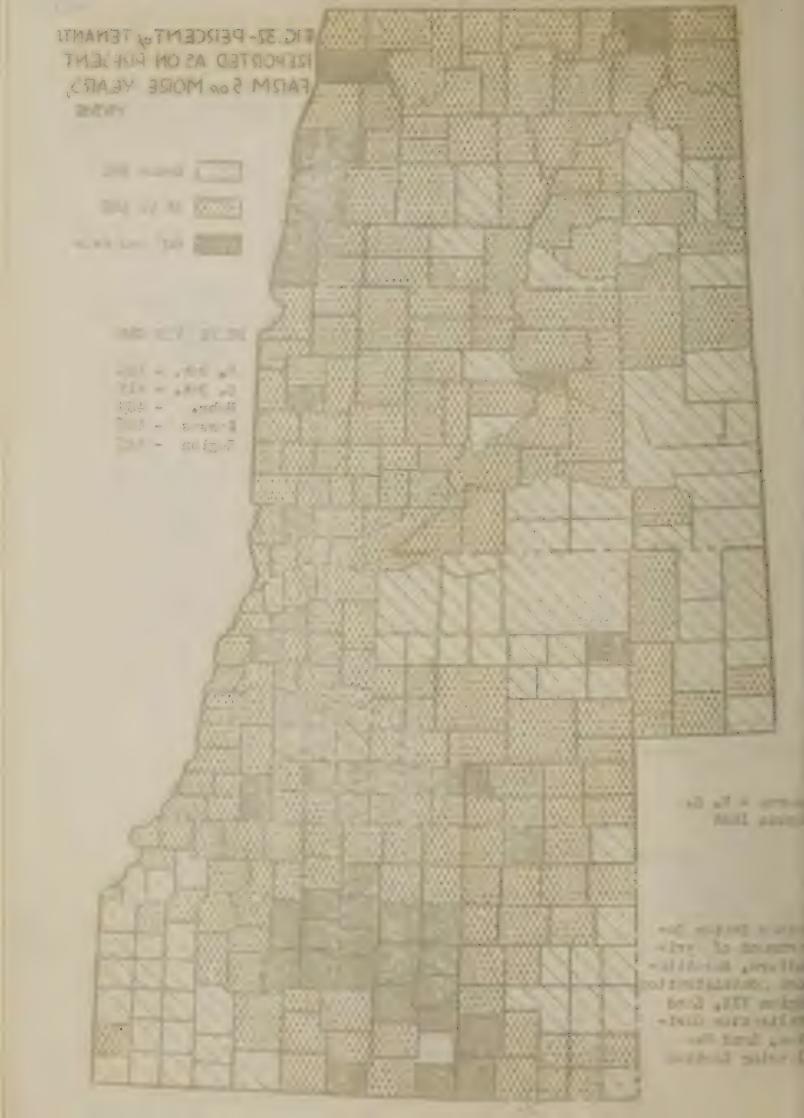


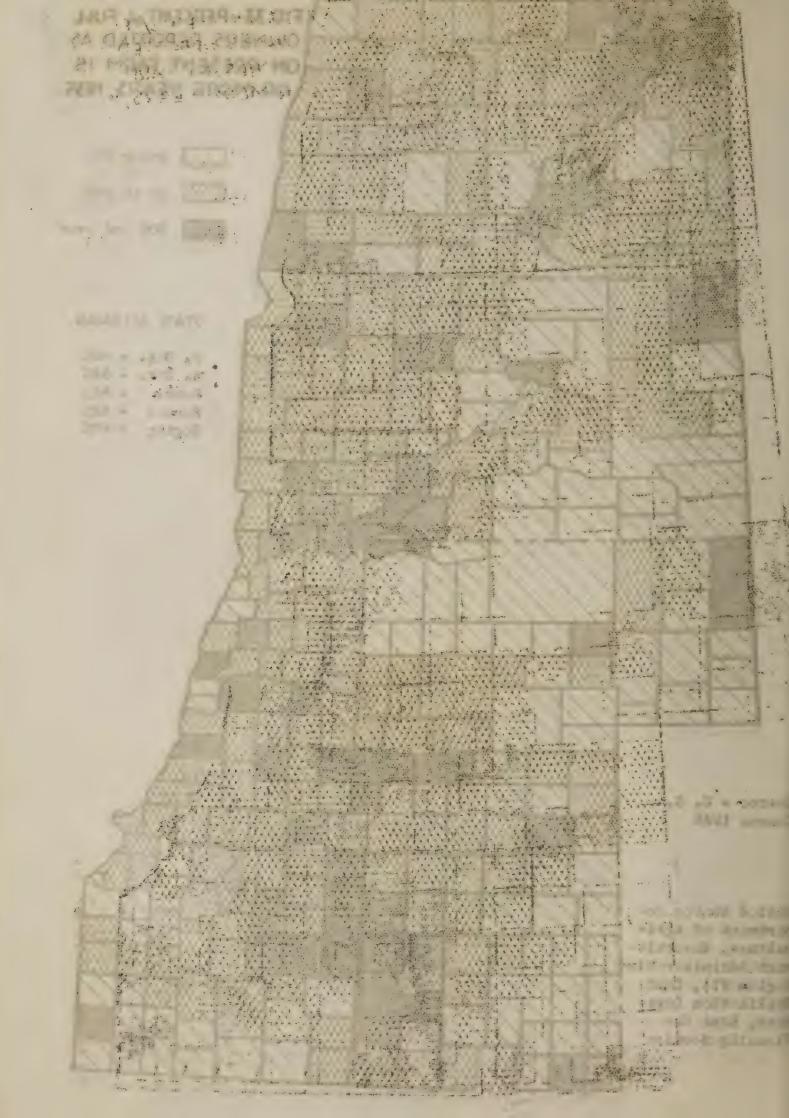


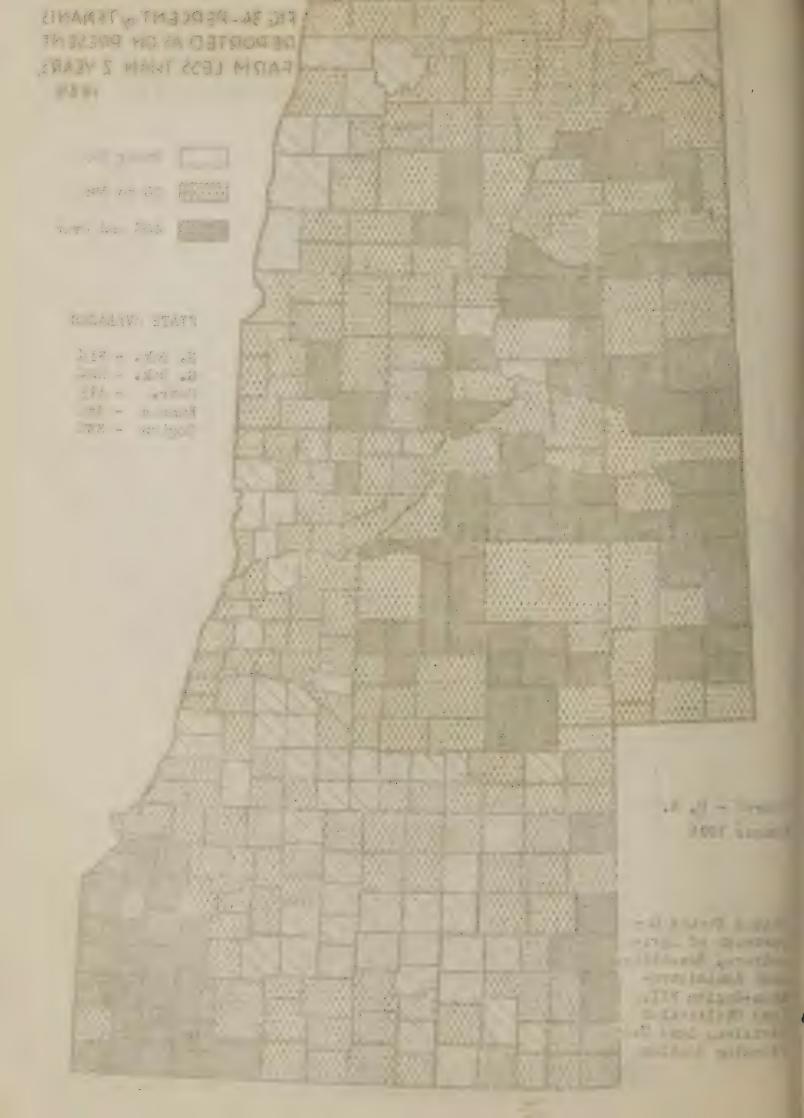


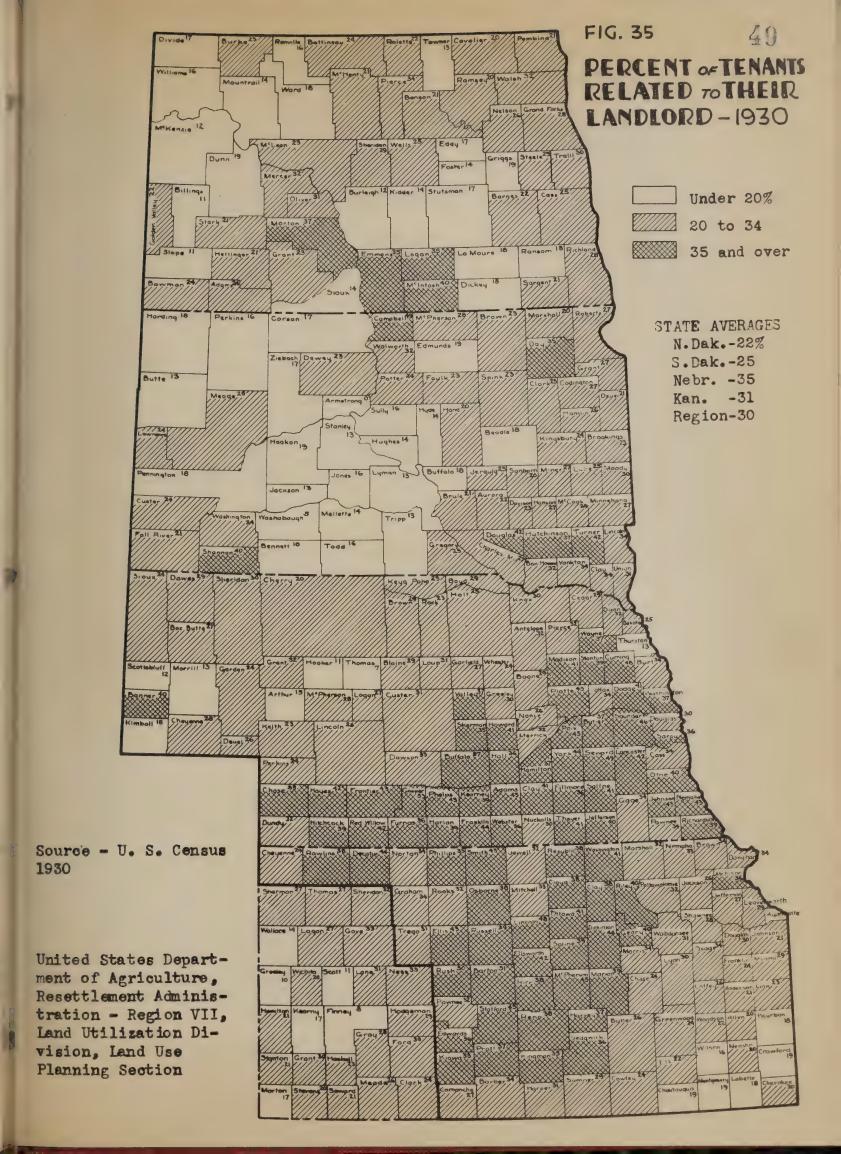














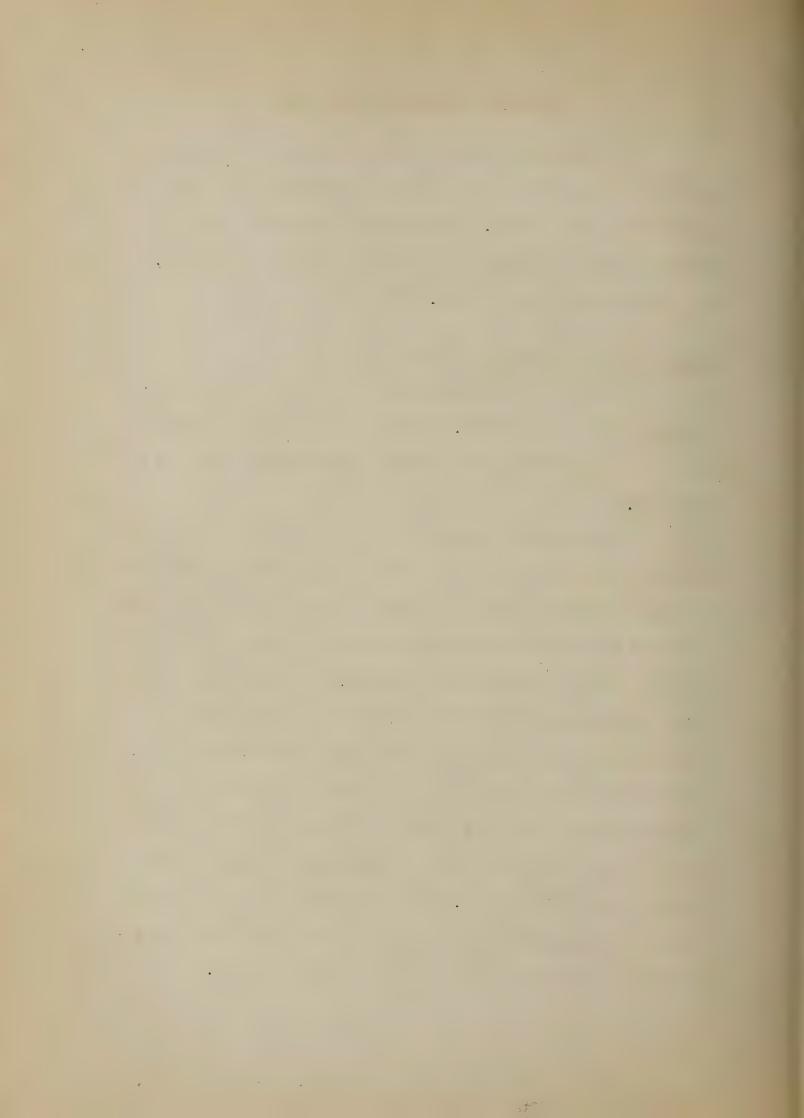
#### Farm Real Estate and Machinery

A consideration of the value of farm real estate and machinery is suggestive of the type of development that has taken place in the region. Other phases of farm real estate problems, such as the proportion mortgaged and the tax burden, are also included in this study.

## Value of Farm Real Estate - Figures 36 to 38

The value of farm real estate rose rapidly without interruption from 1900 to 1920. Since the peak in 1920 valuations have declined until they are somewhat lower than the 1910 level, figure 36.

A nore detailed analysis of the 1930 valuations per acre and per farm reveals marked differences between areas, figures 37 and 38. The highest values per acre are found in the southeastern corner of South Dakota, the eastern third of Nebraska and the contral and northeastern portions of Kansas, while the lowest valuations are located in the western part of the region. Owing to the difference in the size of farms in the various sections a good deal of the area with the lowest valuation per acre has the highest valuation per farm. This is particularly true of southwestern Kansas, the sand hills in Nebraska, and portions of the western half of the Dakotas. Other areas like the southeastern corner of Kansas, which has a relatively high valuation per acre, rank in the lowest valuation group on a per farm basis.



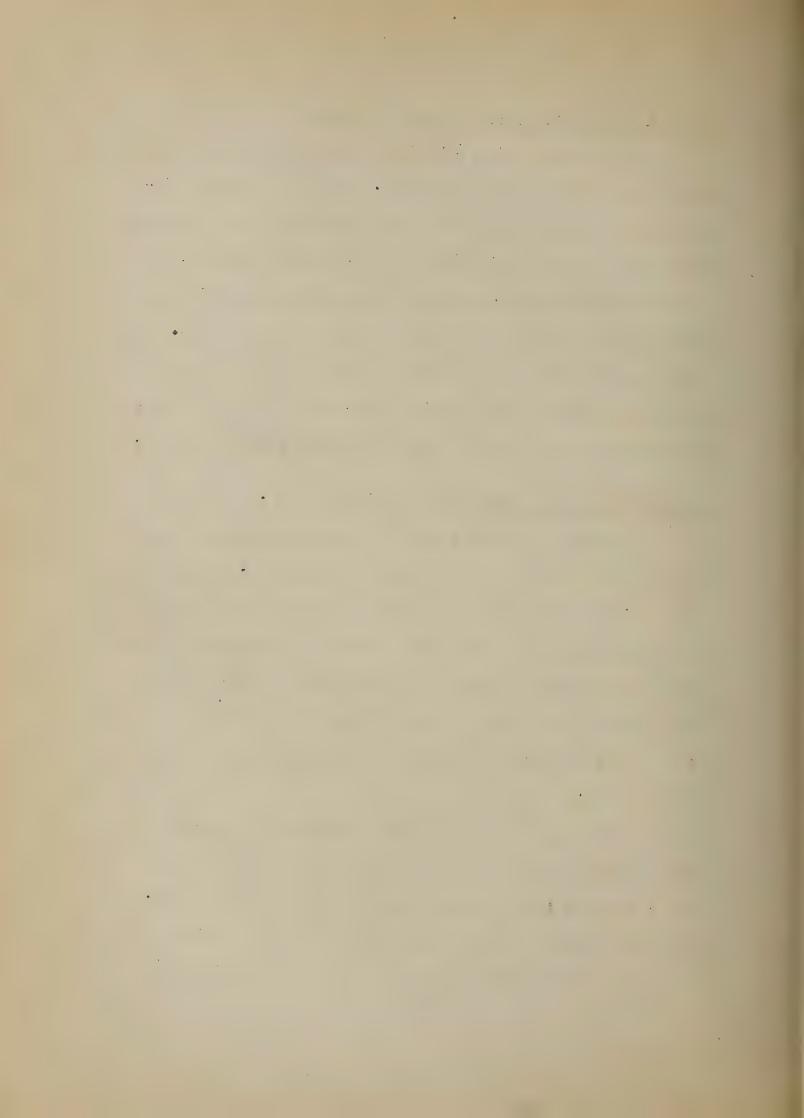
#### Value of Implements and Machinery - Figure 39

The average amount invested in implements and machinery varies considerably within the region. The largest average investment is made in the extensive wheat producing areas of central North Daketa, north central South Daketa, western Nebraska, and southwest central Kansas, while the smallest investment is found in the general farming areas of the eastern third of Kansas. Host of south central South Daketa and all of the eastern two-thirds of Nebraska, except the northeastern corner, have as low or a lower investment than the regional average of twelve throughout dellars.

### Owner-Operated Farms Hortgaged - Figures 40 to 44.

The trend in the per cent of owner-operated farms nortgaged in 1910, 1920, 1925, and 1930 is shown in figure 40. An examination of the individual areas show that the eastern two-thirds of Kansas, the southern half and north central sections of Nebraska, and the southeastern corner and parts of western South Dakota, have the lowest per cent (35 to 60) of owner-operated farms nortgaged, figure 41. In the remainder of the region the proportion varies from 60 to 85 per cent.

Another phase of the mortgage situation is the ratio of mortgage debt of full owners to the value of their farm real estate, figure 42. The average for the region is 38 per cent, most of the counties in the eastern portion closely approximating or exceeding this figures and those in the western part falling



considerably below the average. The mortgage debt per acre is also given, figure 43. The average on all mortgaged farms in the region operated by full owners is \$19 per acre, but individual counties vary from \$2 to \$85. The eastern part of Nebraska and adjoining counties in South Dakota and Kansas have the largest debt per acre while the western portion of the region has the smallest.

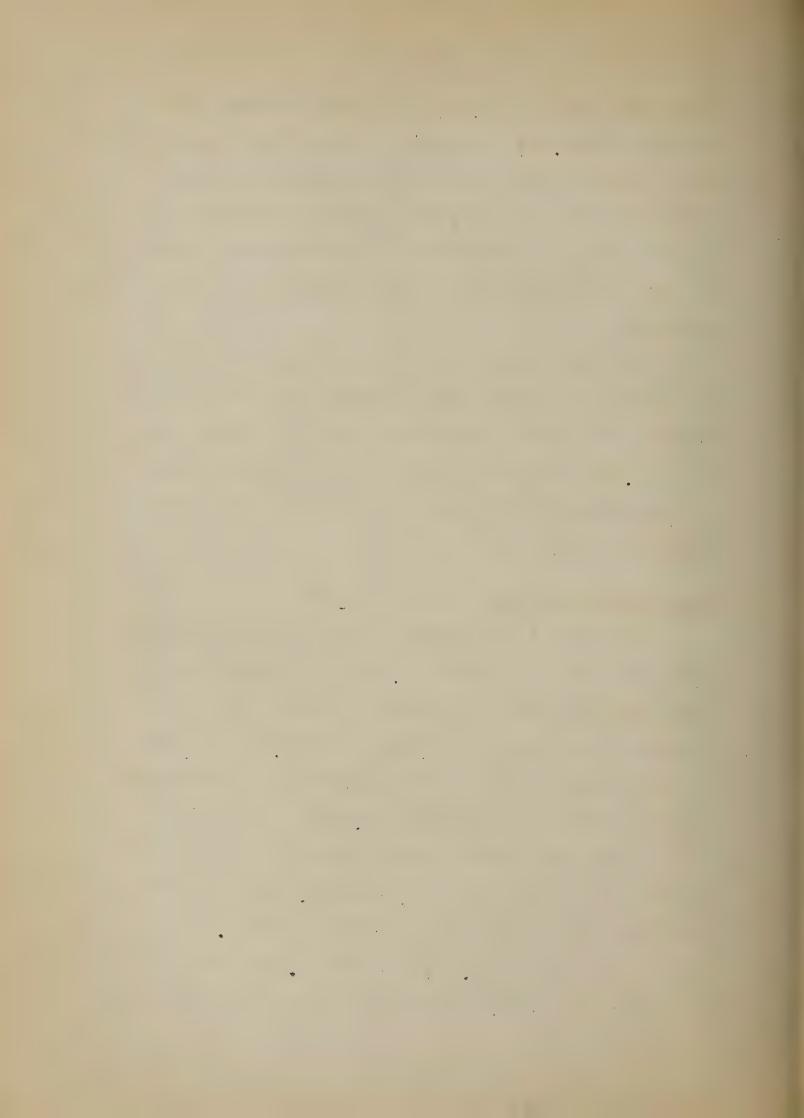
The average rate charged on farm mortgages is based on the total charges paid by the mortgagee, figure 44. Interest is the principal item although commissions, bonuses, and premiums are also included. The lowest charges are made in eastern Nebraska and southeastern South Dakota, and the highest in the western portion of the region.

## Taxes Paid by Full Owners - Figures 45 to 48.

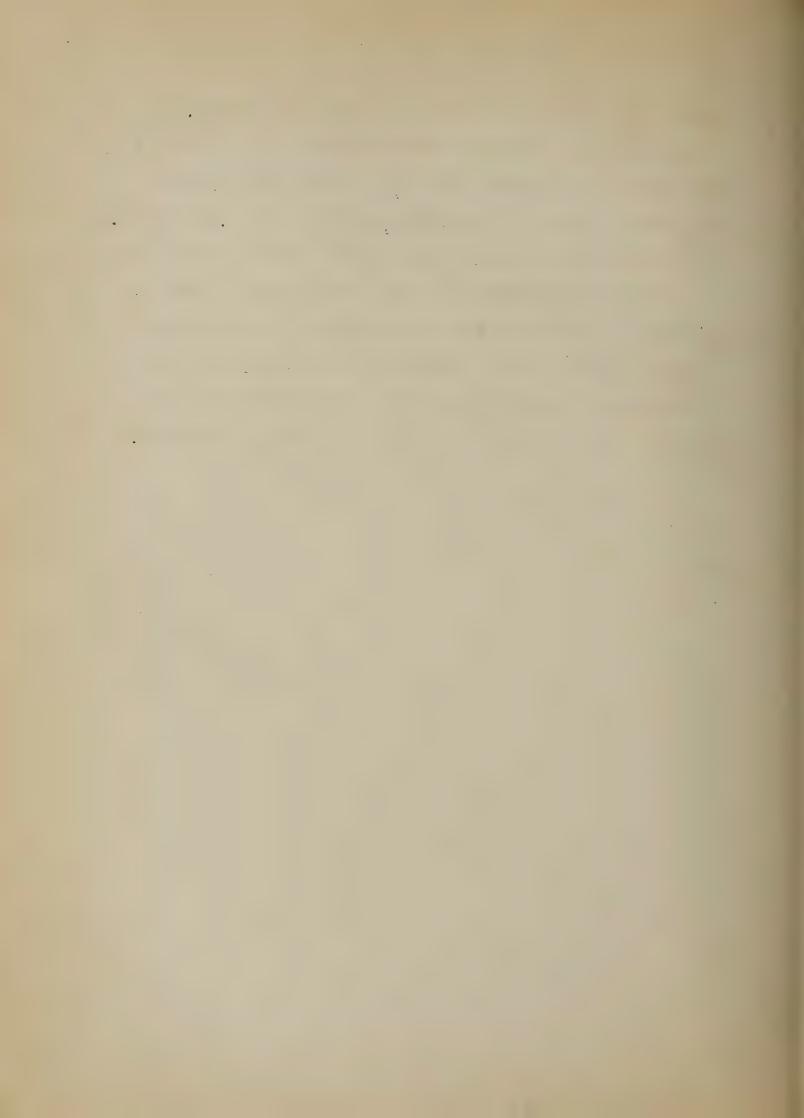
The trend in the tax burden of full owners from 1915 to 1934 is presented in figures 45 and 46. The taxes per acre increase materially from 1915 to 1921, holds about even in all the states except Kansas until 1930, then decreases. However, the taxes per \$100 valuation increase rather steadily until 1931 and 1932, before showing a marked decrease.

Taxes paid by full owners is expressed as a per cent of the value of their land and buildings, figure 47. The amounts paid per \$100 valuation varies from 80 cents in Nebraska to \$1.30 in ...

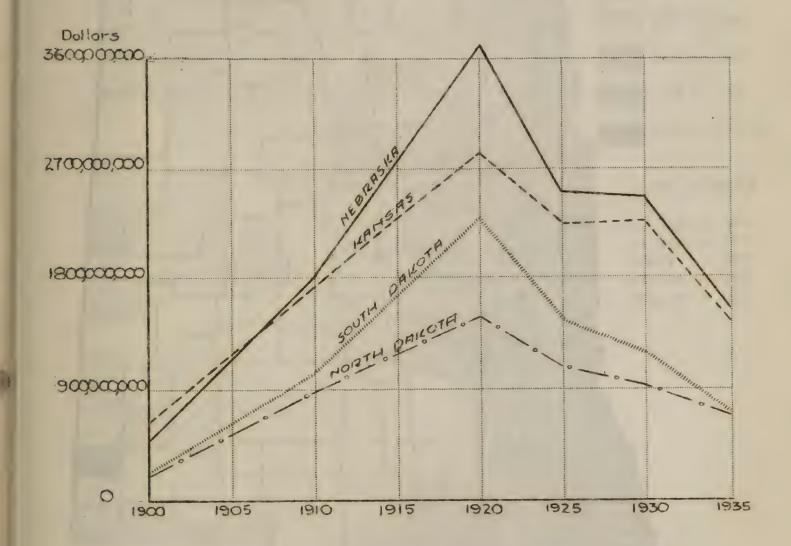
Kansas and South Dakota and \$1.60 in North Dakota. Outside of the larger part of Nebraska, southwestern Kansas is the only



area of any size that pays loss than \$1 per \$100 valuation. The southeastern and northeastern corner of Kansas and a majority of the counties in the western Dakotas, as well as large areas in the eastern portions of these states, pay more than \$1.50 per \$100. Some counties in the western section of the Dakotas pay more than \$2 per \$100. South central and northeastern Kansas, eastern Nebraska, and southeastern South Dakota pay the most taxes per acre while the western counties pay the least, figure 48. The sand hills area of Nebraska has especially low taxes per acre (less than 10 cents as compared with the regional average of 60 cents.)



# FIG. 36 TREND IN VALUE OF LAND AND BUILDINGS PER FARM,

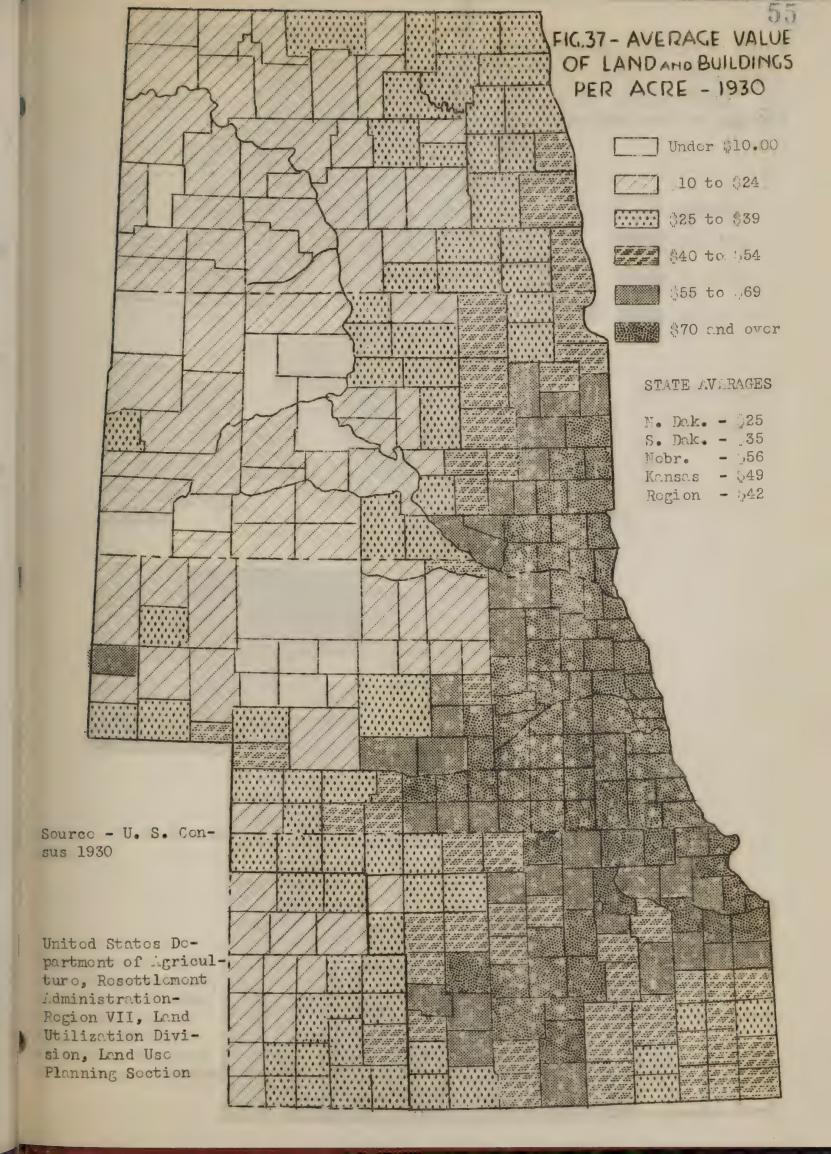


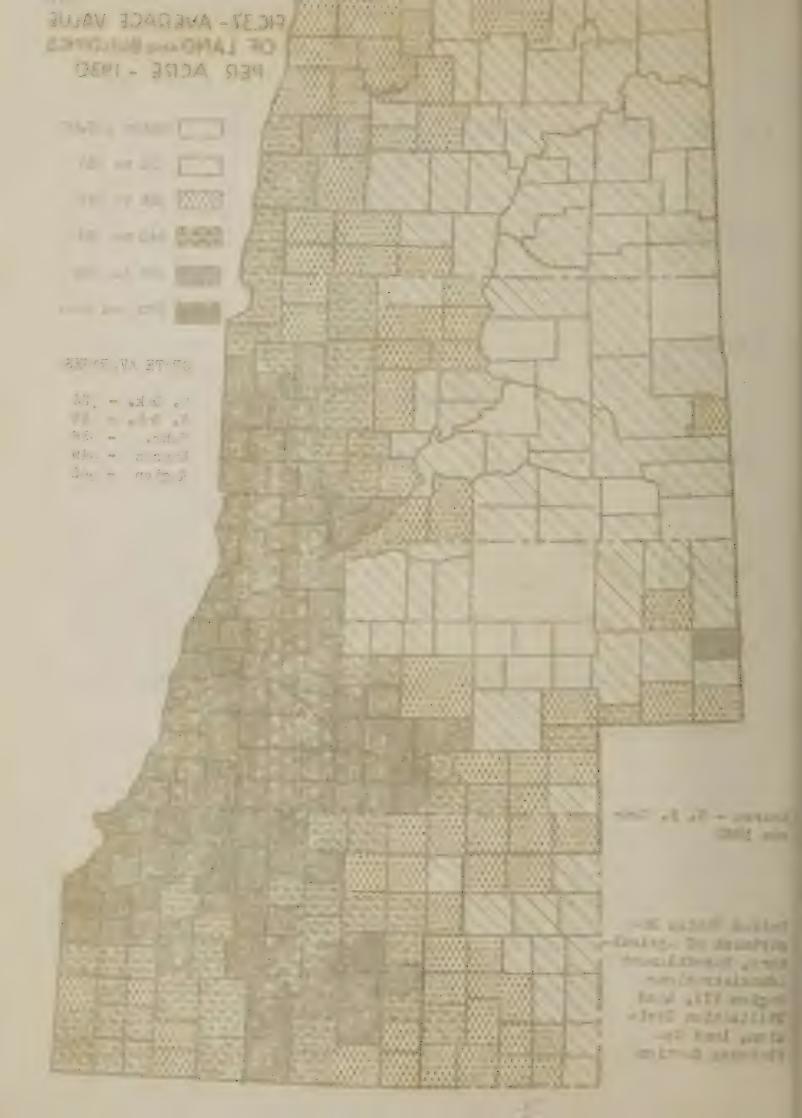
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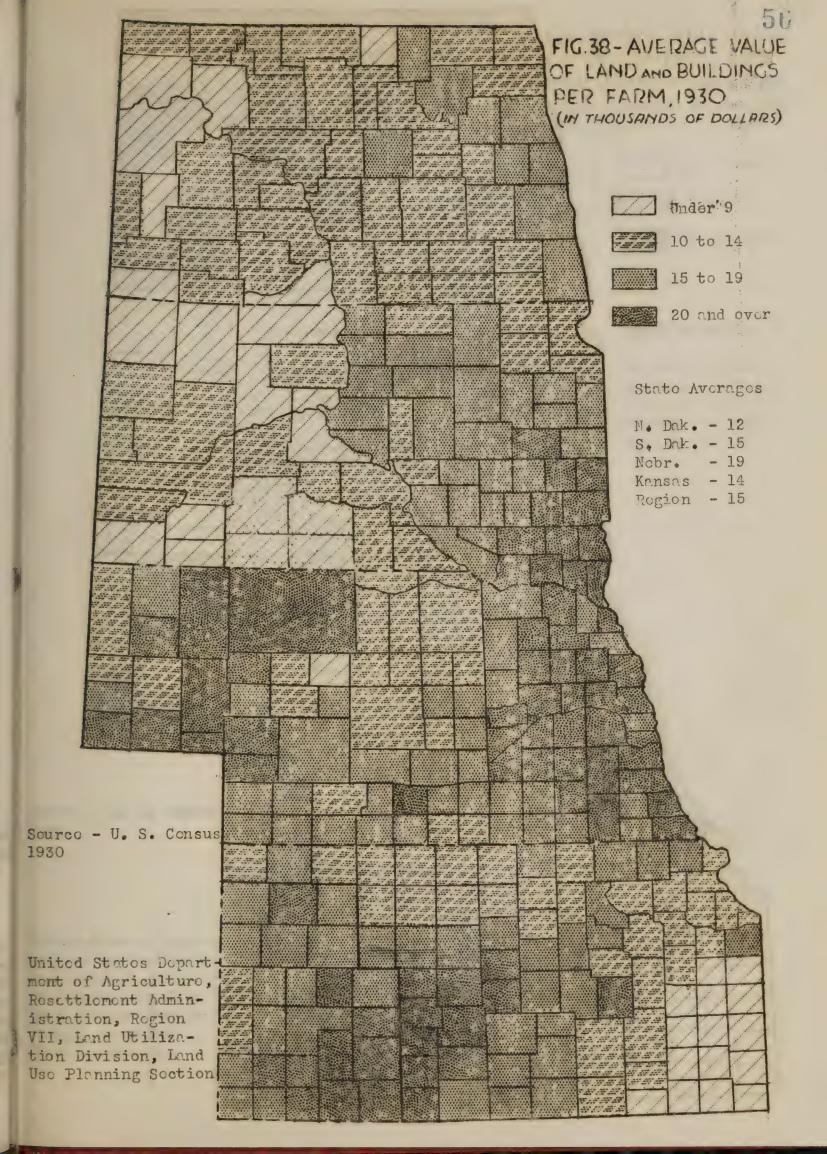
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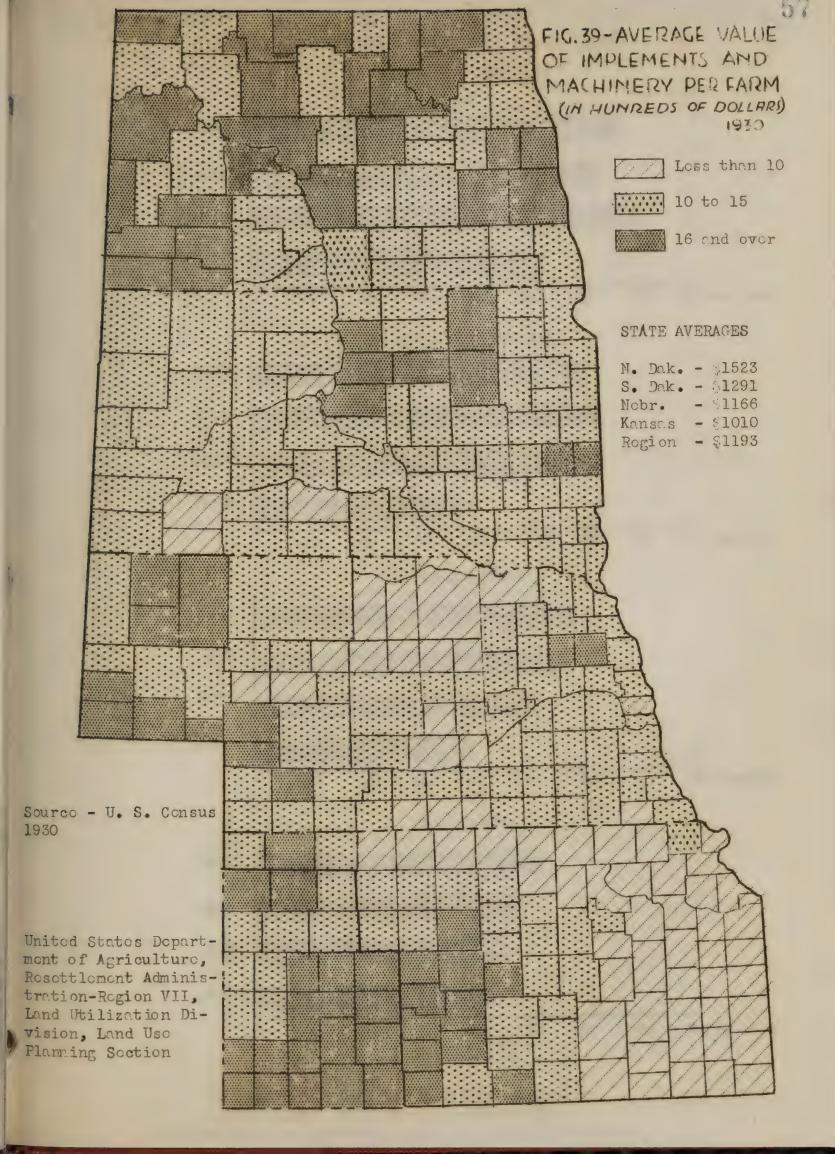
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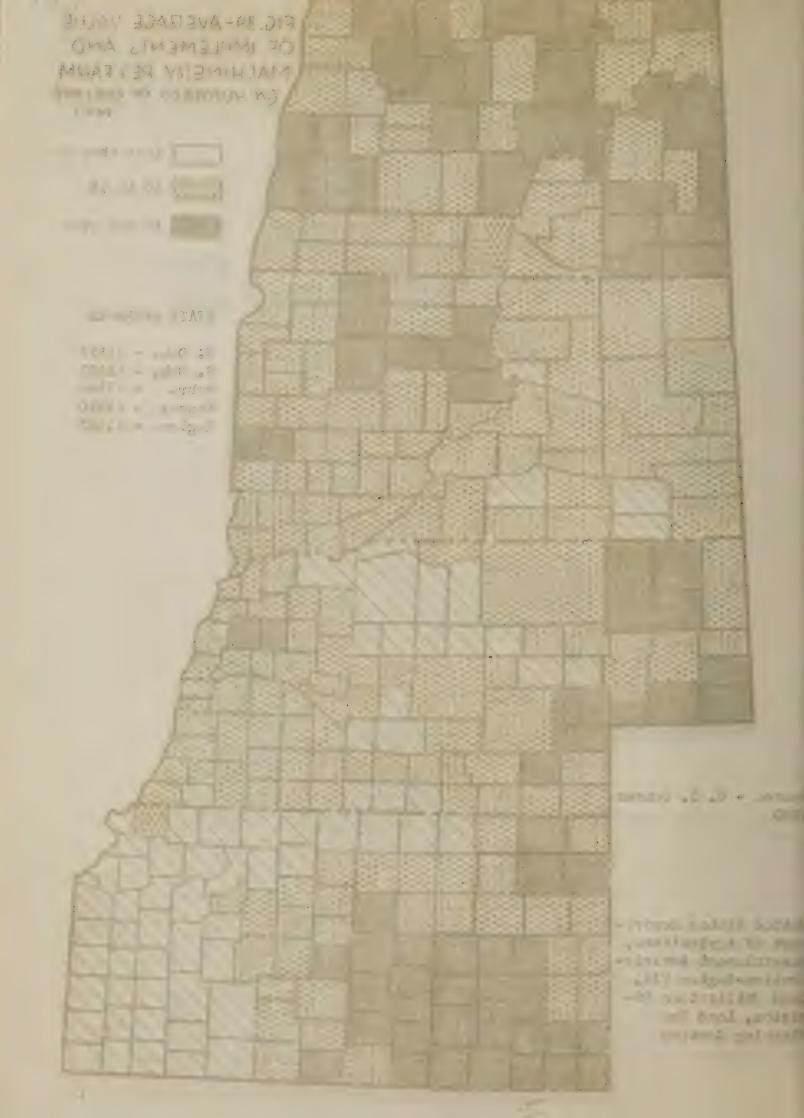




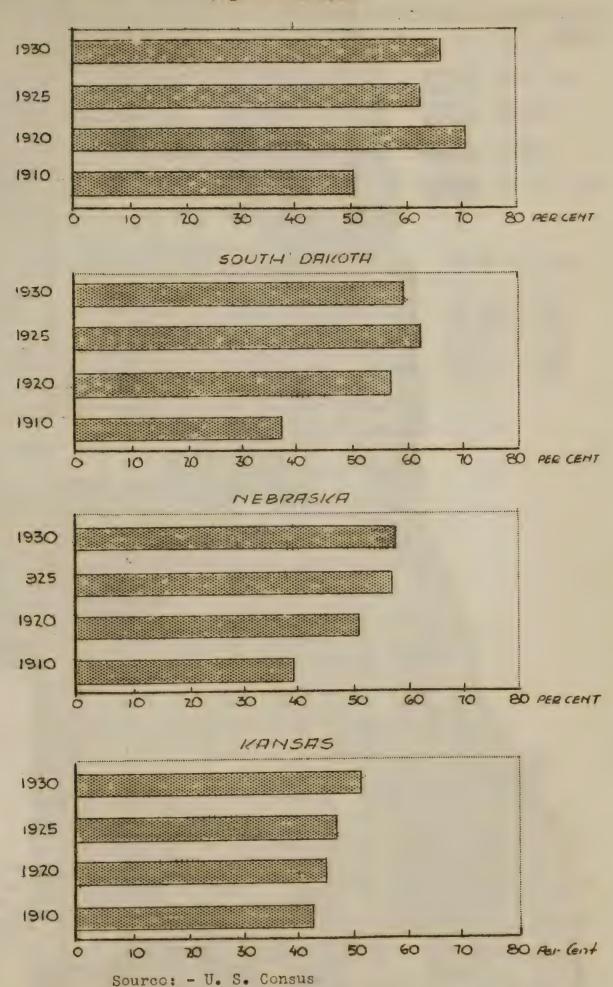




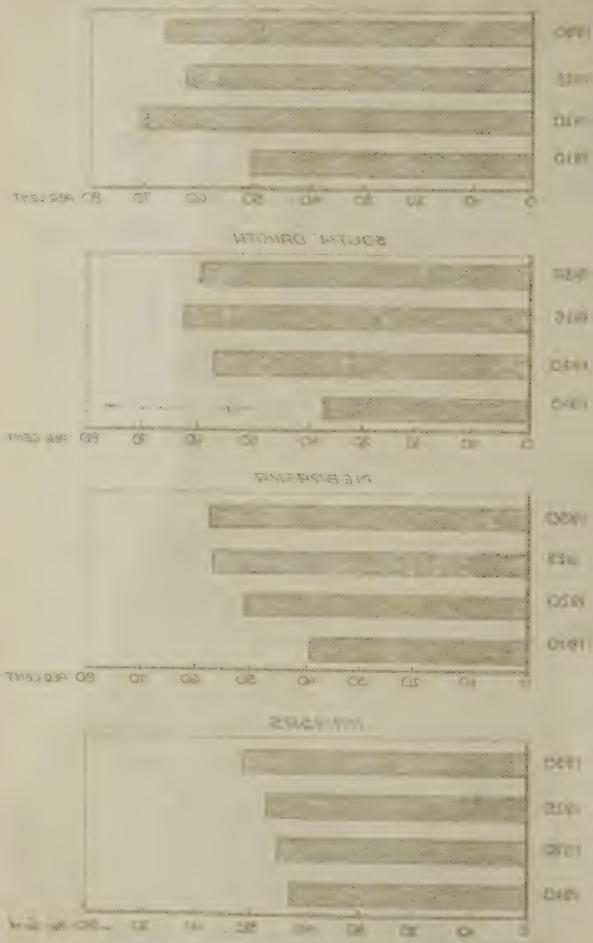




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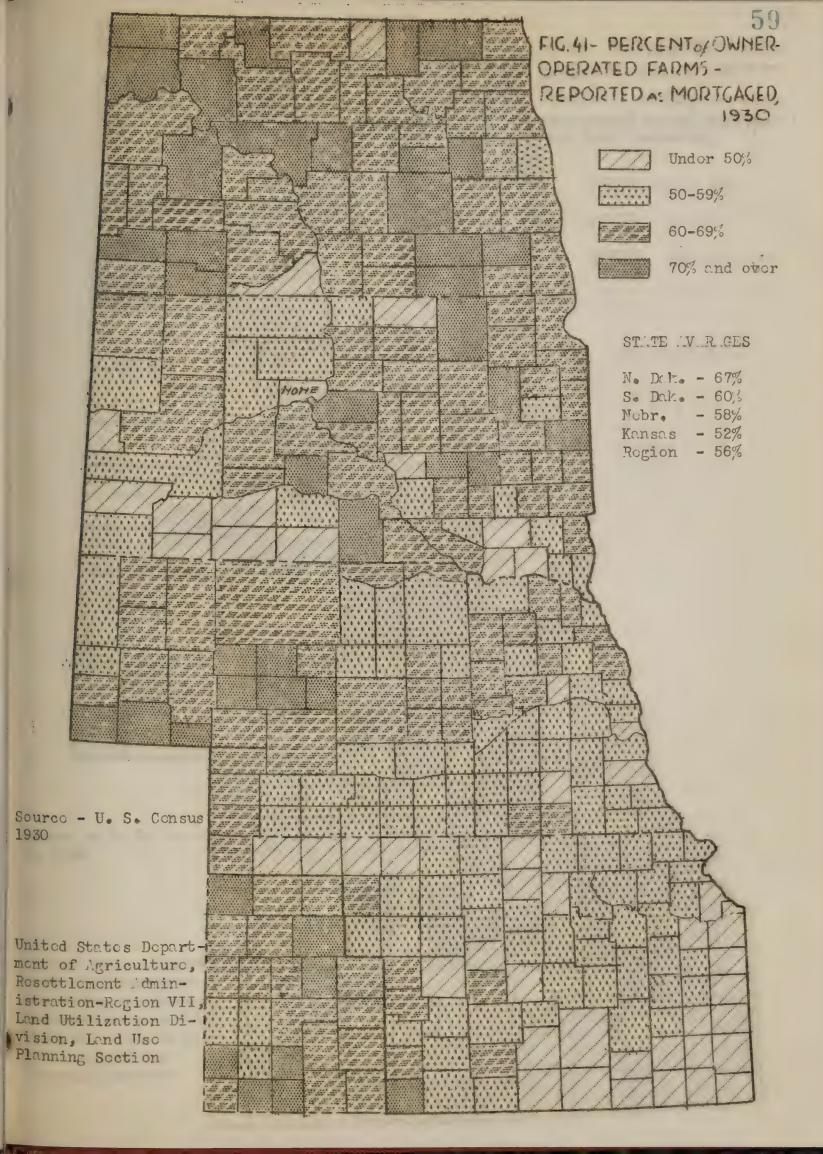


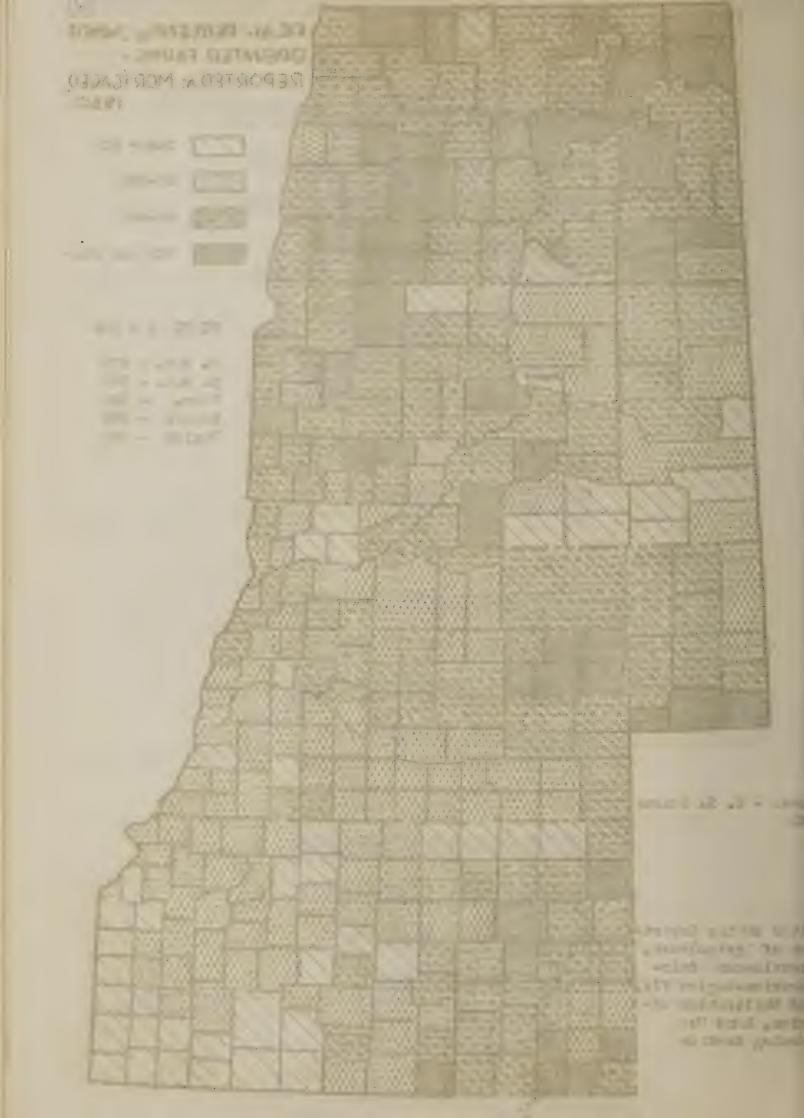
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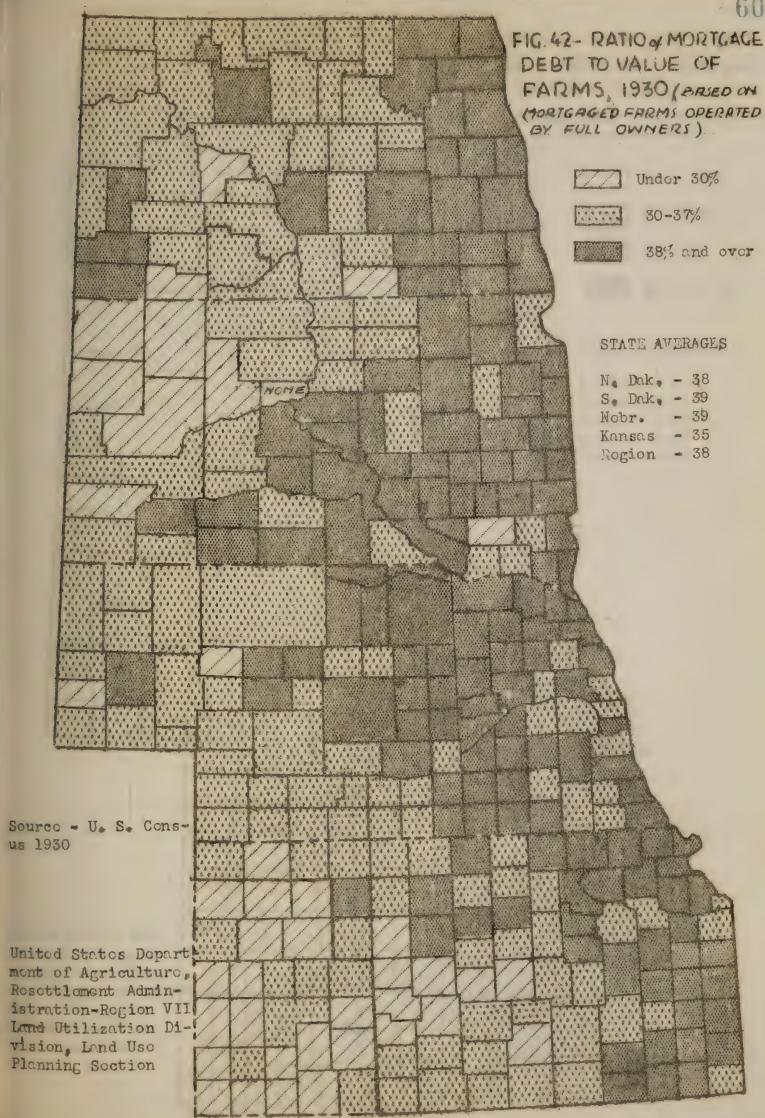


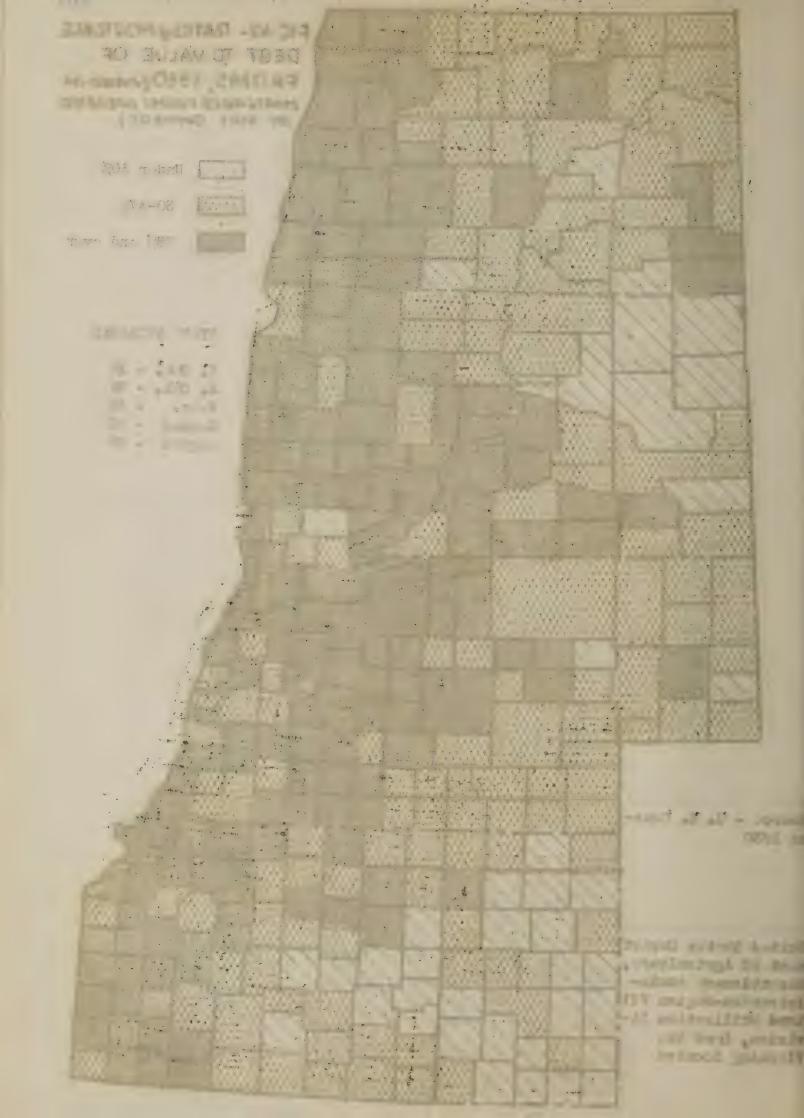
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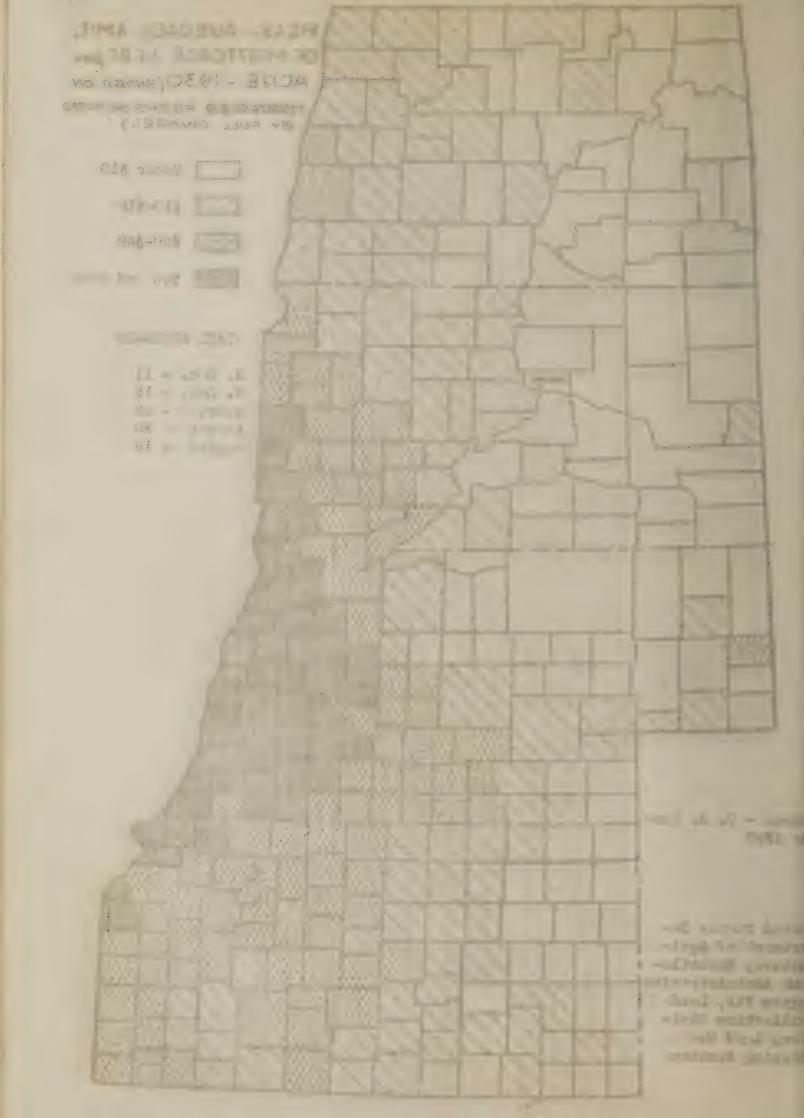
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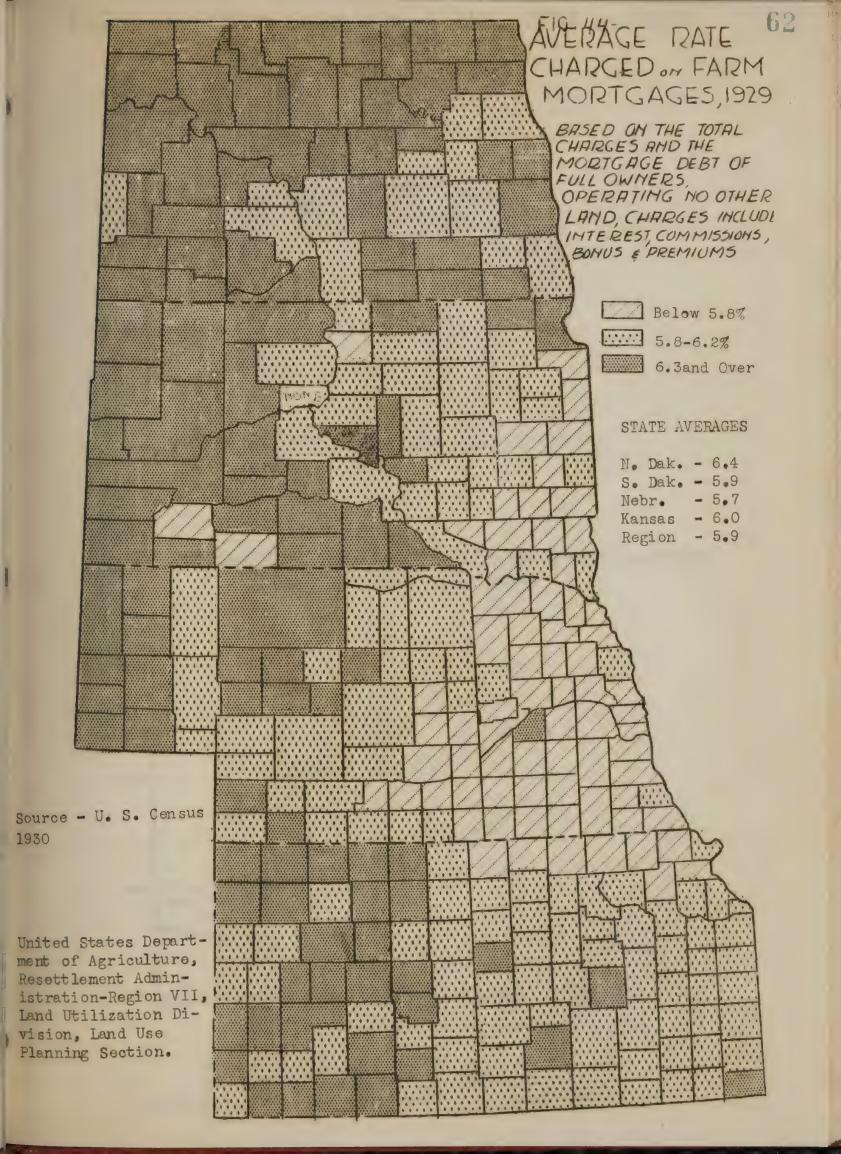


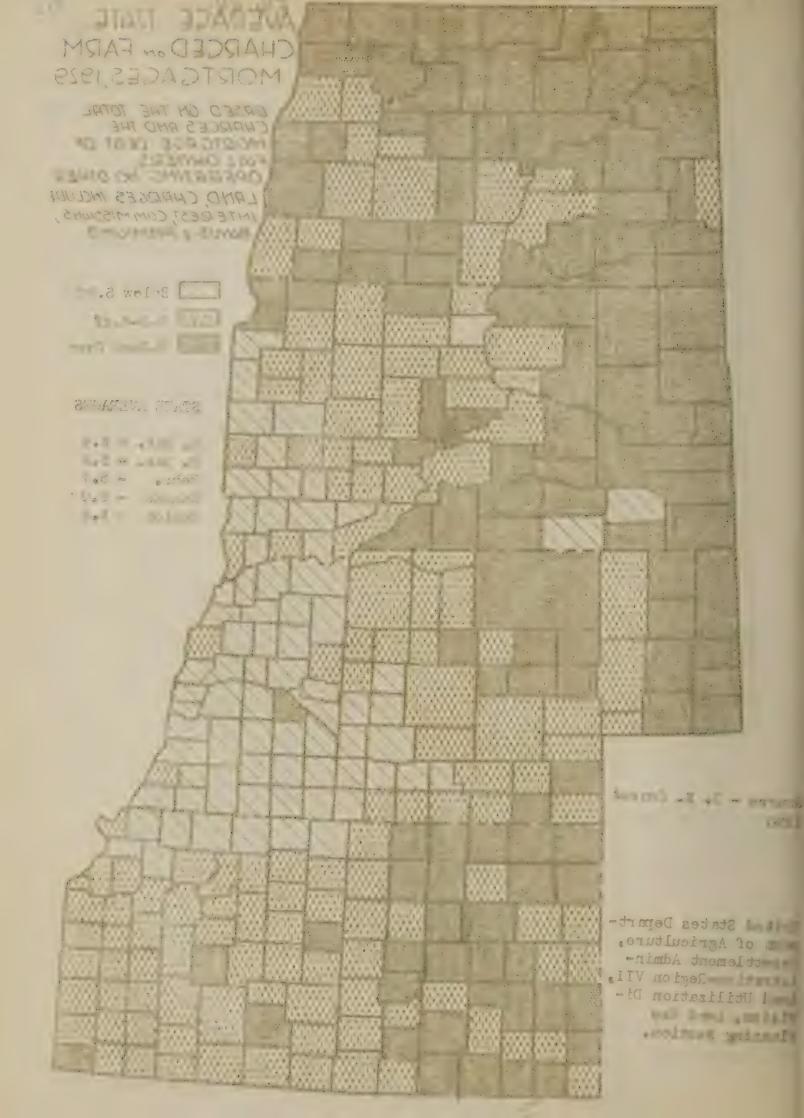












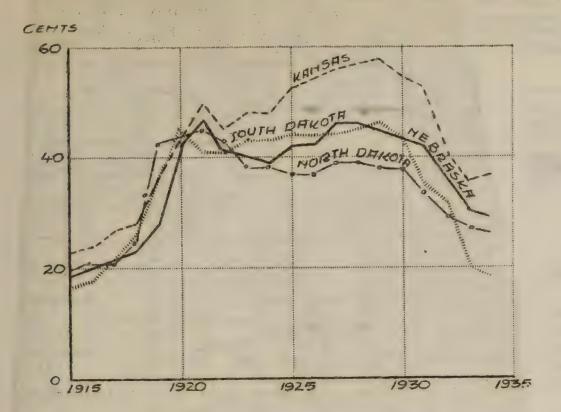
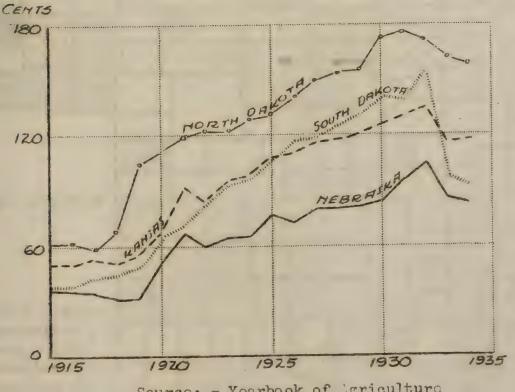
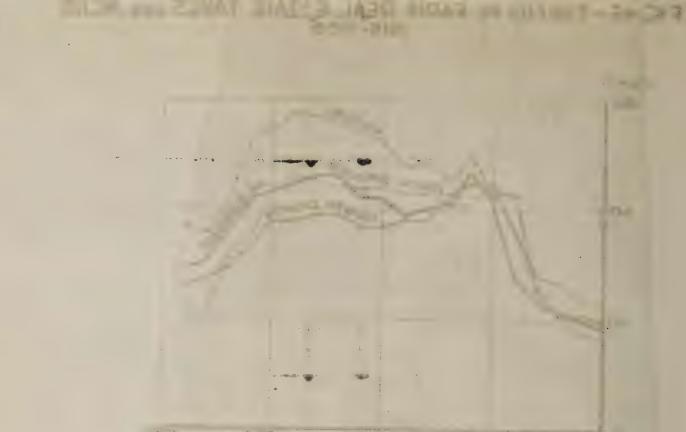


FIG. 46 - TREND IN FARM REAL ESTATE TAXES DER \$100 VALUATION - 1915 - 1935



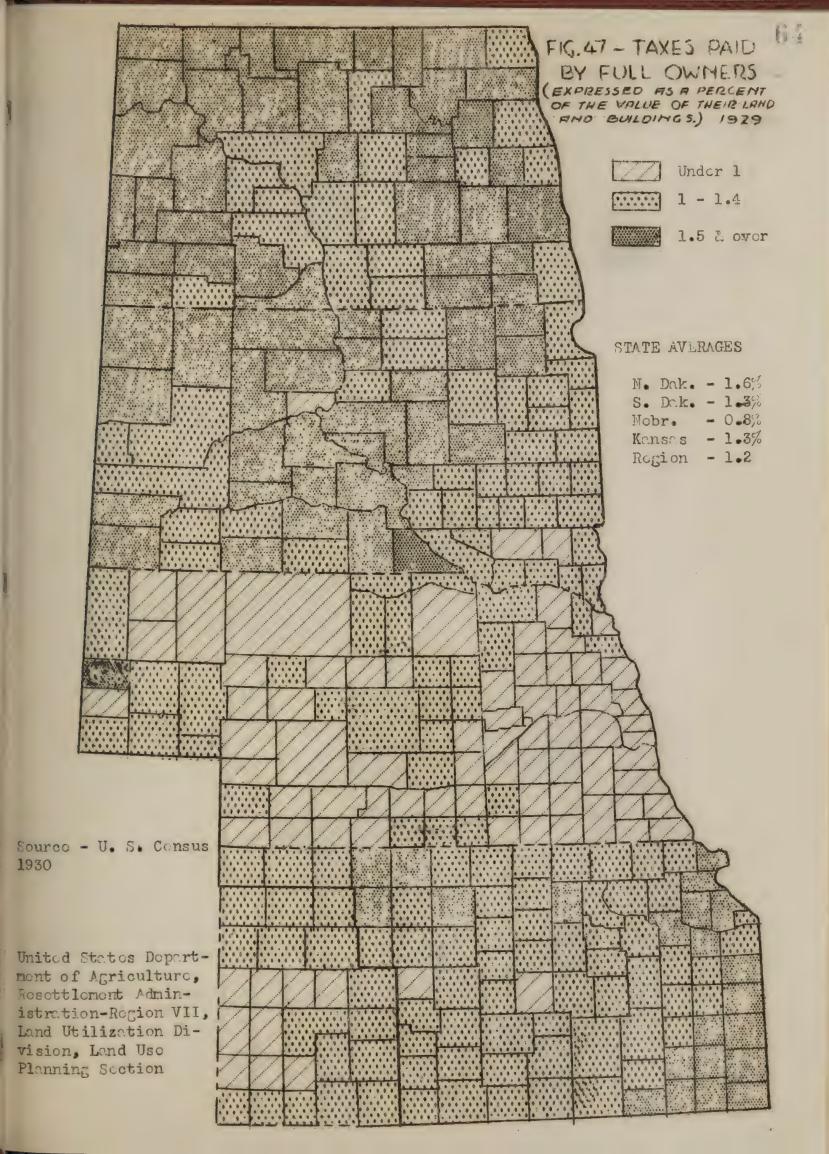
Source: - Yearbook of Agriculture

United States Department of Agriculture Resettlement Administration-Region VII, Land Utilization Division, Land Uso Planning Section

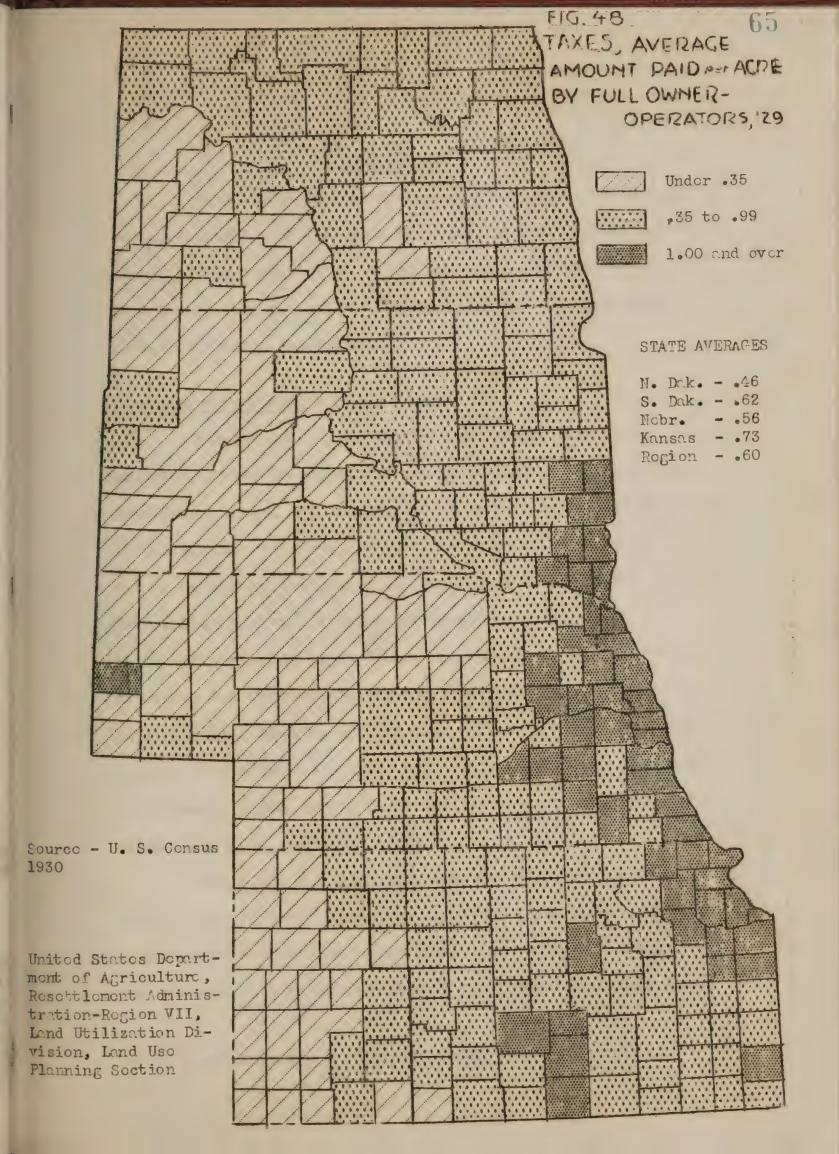


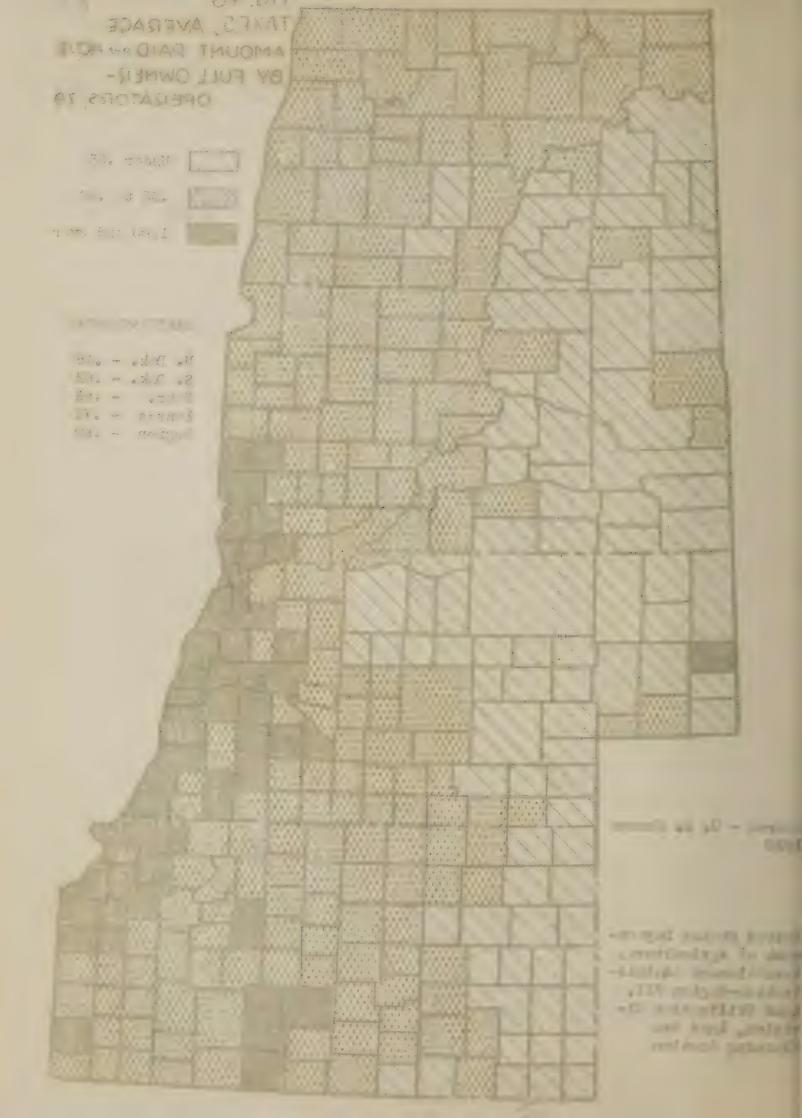
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#### Farm Income

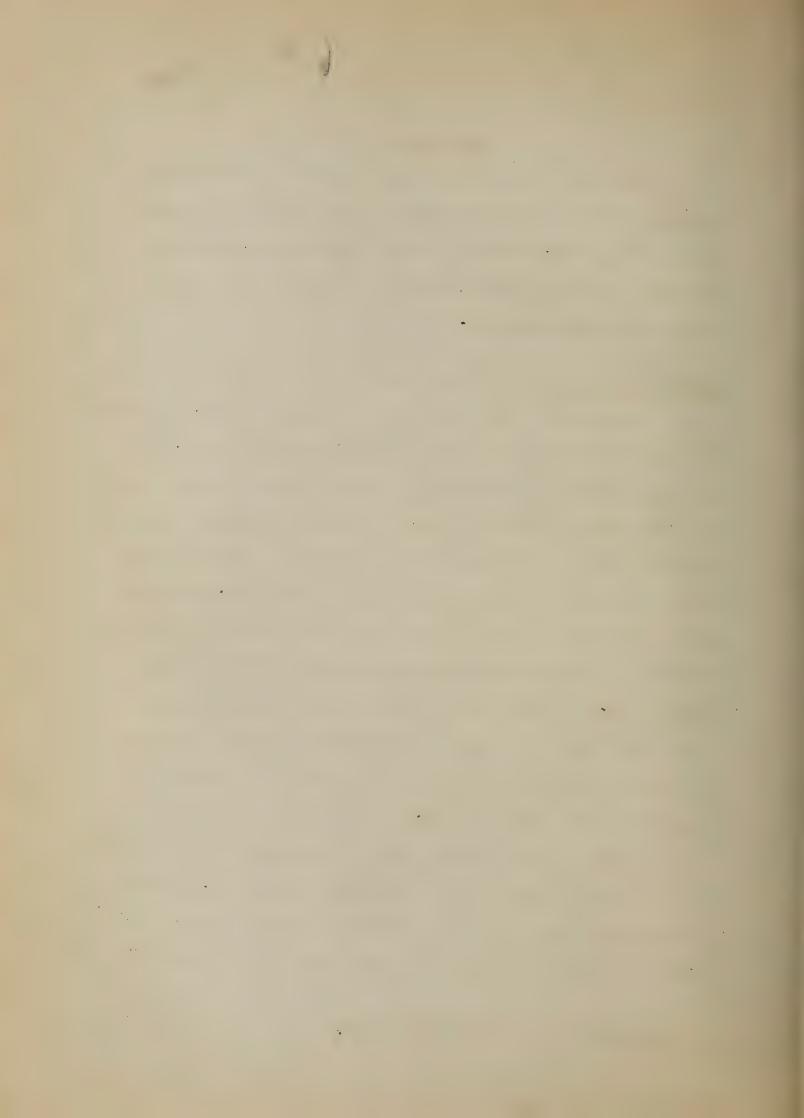
Farm income factors are primary indices of the relative economic position of different areas and as such have an important place in this study. Only the source of farm income, the gross farm income, and the value of products of the farm used by the family are herein considered.

## Source of Farm Income - Figures 49 and 50

Farm income may be derived from crops, livestock, livestock products, forest products, farm products used by the family, and boarders, lodgers, and campers, 1/ For the purposes of this study the income from boarders, lodgers, and campers is excluded and farm income is divided into three classes according to source; namely, crops, livestock and livestock products, and all other. The trend farm in the proportion of gross/income obtained from crops and from livestock and its products for the years 1924 to 1934 are given in figure 49. The proportional share of the total gross income derived from crops has decreased in every state during this period although marked yearly fluctuations occur in the Dakotas and Nebraska in 1926, 1931, and 1934.

Crops are the primary source of gross farm income in northern and western North Dakota, southwestern South Dakota, western and southwestern Nebraska, and west central and western Kansas, figure 50. In southeastern South Dakota, north central and northeastern

<sup>1/</sup> As defined in the U. S. Census, 1930.



Nebraska, and eastern Kansas, livestock and their products are the main source of income. These two sources supply about an equal proportion of the total income in the remainder of the region.

In southeastern Kansas the per cent of income from all other sources is proportionately larger than in any other area, accounted for by the fact that a larger proportional share of the farm products are used by the farm family. This is indicative of a mere self sufficing type of farming.

#### Gross Farm Income - Figure 51

The average gross income per farm in the region is \$3000.

The state averages vary from \$3800 to \$3500 and in particular counties within the states these figures vary from \$1200 to \$13300.

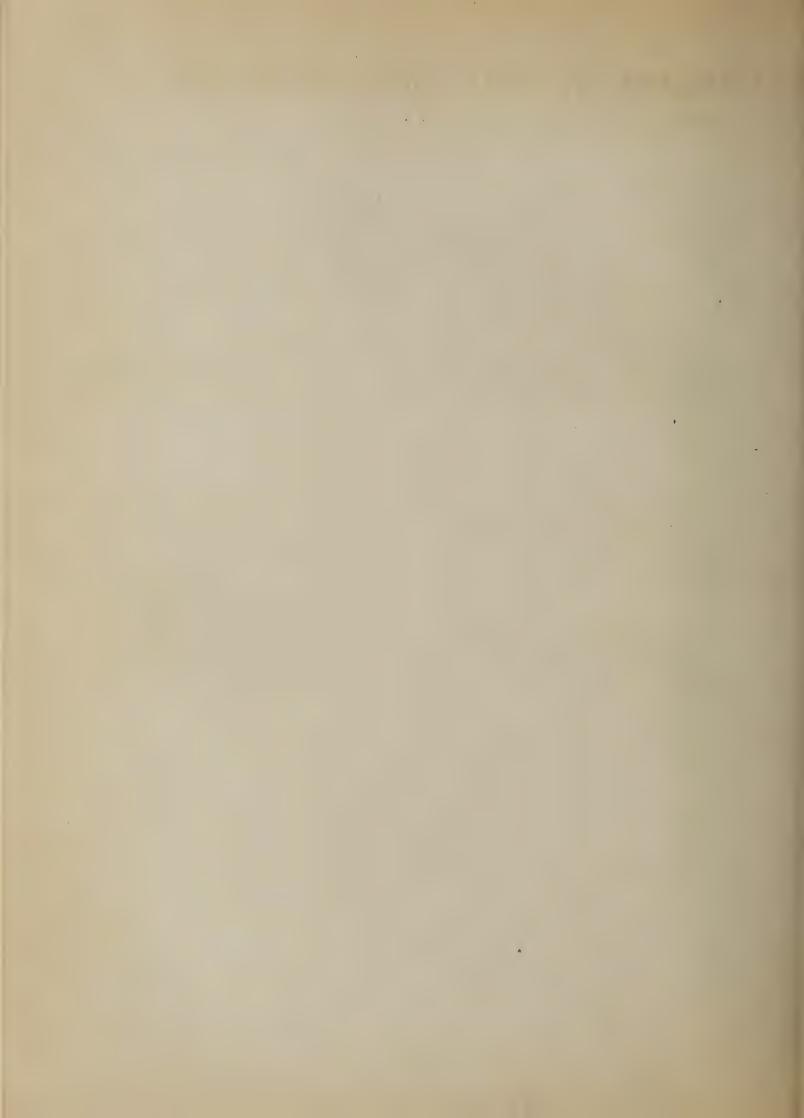
Western Nebraska and Kansas, and several other smaller areas along the eastern border of the region have the largest gross income while southeastern Kansas and west central South Dakota rank relatively low. It should be recognized, however, that farm costs and not farm income also need to be considered.

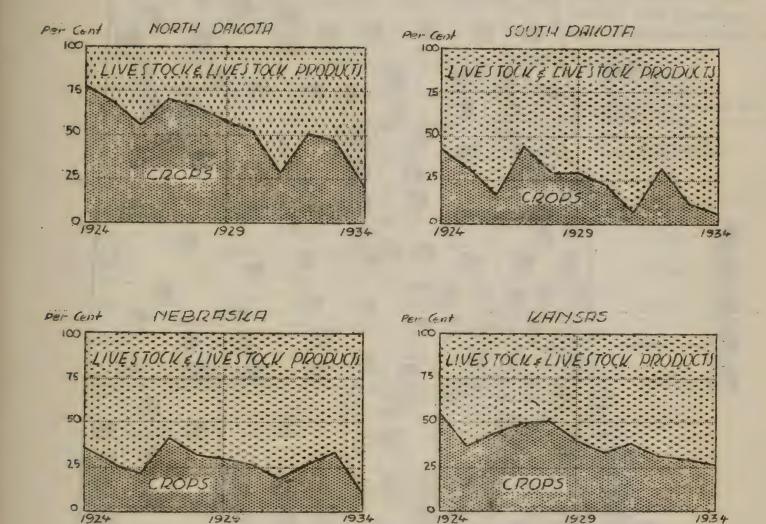
## Value Per Farm of Products Used by Operator's Family - Figure 52

The value of farm products used by the family is highest in northeastern Morth Dakota, southeastern South Dakota, eastern Nebraska, and other scattered counties in the region. In general, families living in areas of low gross income use loss farm produce than other families and vice versa. The area in southwestern Kansas is one notable exception. Attention is also directed to the fact that although the farm families in southeastern Kansas use a proportionately larger share of the products from their

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farms, figure 50, the total value of these products is not as great as that in many other areas.





Source: - Yearbook of Agriculture

United States Department of Agriculture Resettlement Administration-Region VII, Land Utilization Division, Land Use Planning Section

# CROSSINGE GROSS AND INCOME, SE-1924

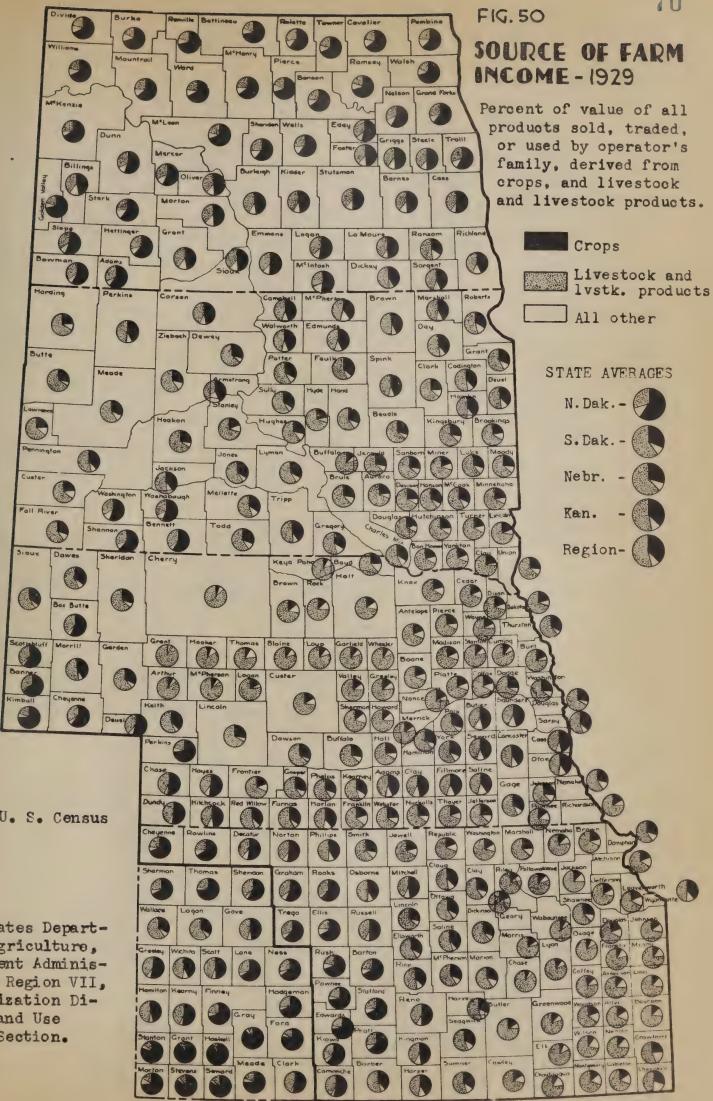


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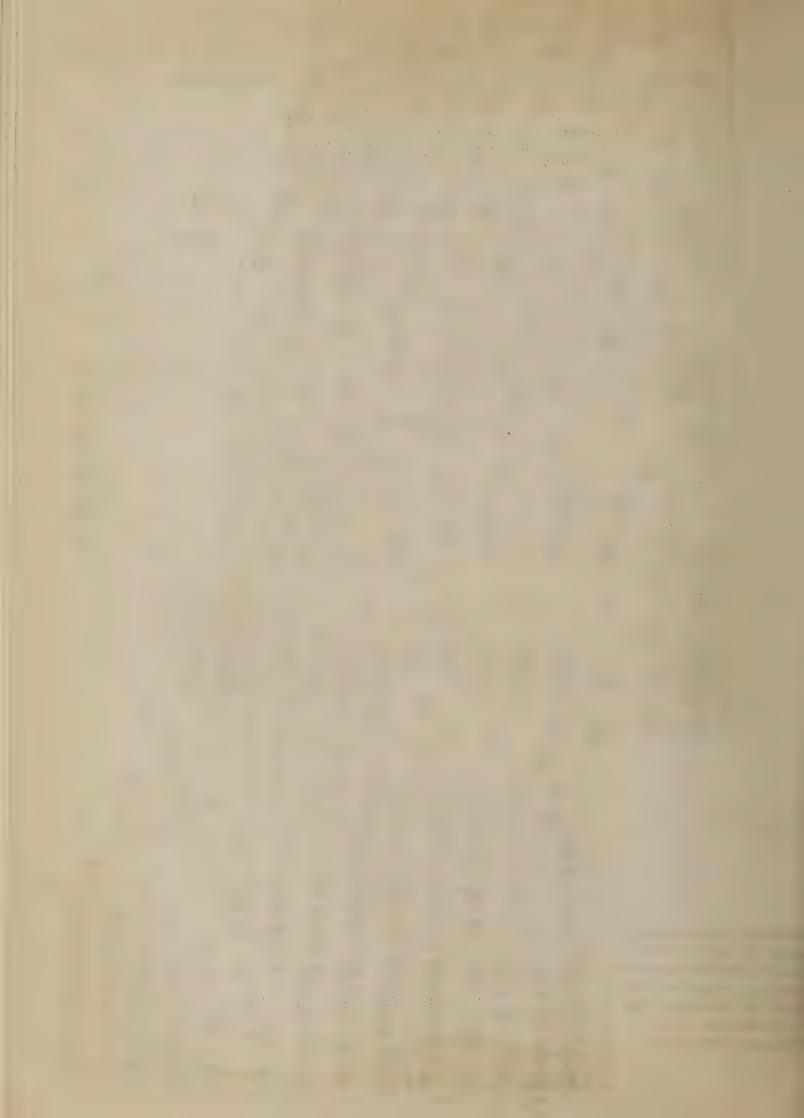
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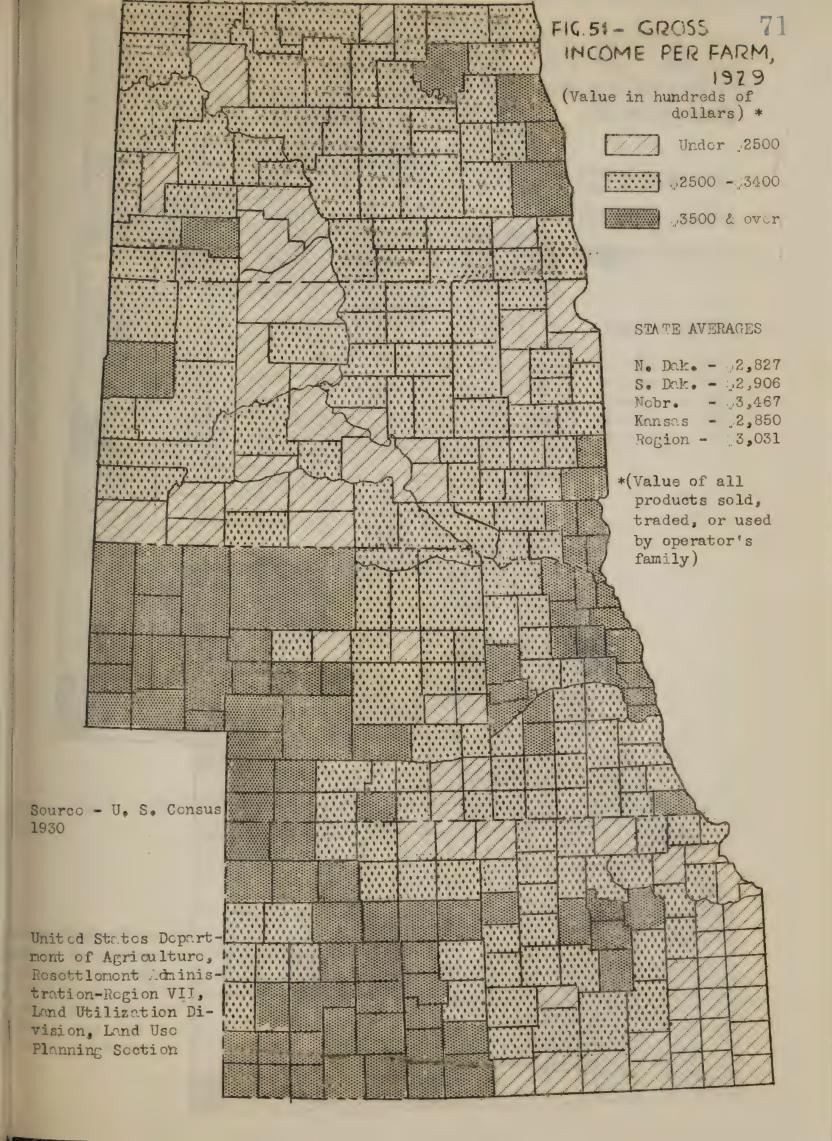
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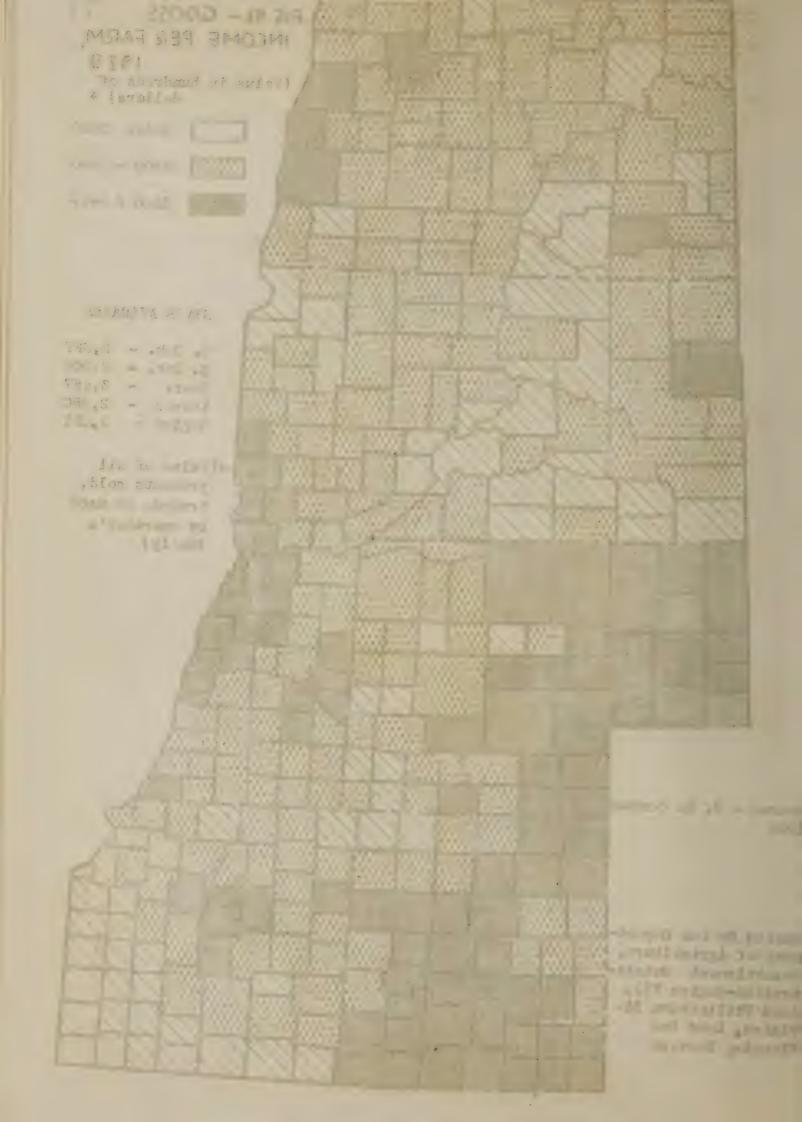


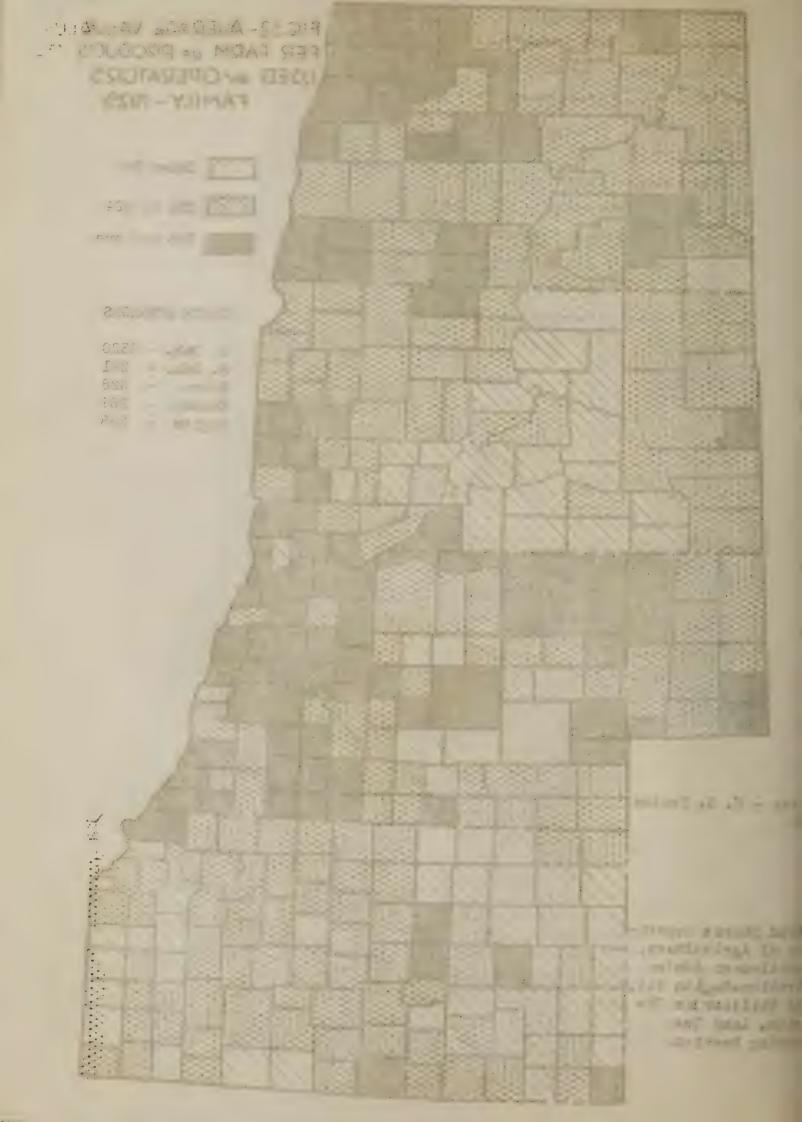
Source - U. S. Census 1930

United States Department of Agriculture, Resettlement Administration - Region VII, Land Utilization Division, Land Use Planning Section.









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## Land Utilization

This section deals with related factors of land utilization including such information as extent and use of all land and farm land, crop acreages and yields, and livestock raised. The relationship that exists between land utilization and the physical and population factors already discussed presents numerous interesting comparisons.

## Type of Farming Areas - Figure 53

The type of farming areas shown in this figure are taken from the study "Types of Farming in the United States." 1/ There are 60 different areas in the region, not including the sub-areas designated by A, B, etc. The legend on the page following figure 53 names each numbered area and gives the characteristics which distinguish it from other areas. Although different in certain respects these areas may be grouped together according to common characteristics as shown in figure 53.

# Utilization of Total Land Area - Figure 54

The trend in utilization of the total land area in each of the four states between 1900 and 1935 is shown in figure 54.

The per cent of all land in farms increased steadily except during the period 1920 to 1935 while the per cent of crop land increases even more steadily until 1930, but then levels off or drops by 1935.

<sup>1/</sup> Propared by Bureau of Consus, Department of Conmerce, cooperating with the Bureau of Agricultural Economics, Department of Agriculture.

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## Land Area in Farms - Figure 55

Eighty five per cent of the total land area in the region is in farms. Over 90 per cent of the area of Kansas and Nebraska, 86 per cent of North Dakota, and 74 per cent of South Dakota is in farms. The eastern third of the Dakotas, eastern and southern Nebraska, and northern and central Kansas have the highest proportions of the total area in farms (over 90 per cent) while the west river area of the Dakotas and southwestern Kansas ranks low (less than 70 per cent and as low as 19 per cent in Washington county, South Dakota). Probably a good deal of the land not reported in farms in the west river area and southwestern Kansas is not out of production but is being grazed or even cultivated.

## Land Area Available for Crops - Figure 56

The per cent of the land area available for crops is the ratio of the total crop land and plowable pasture reported in farms to the total land area. A low ratio indicates that a large per cent of the land is not fit for cultivation but it may be that where a large per cent of the land area is not reported in farms, figure 55, there is additional land available for crops. This should tend to raise the ratio in southwestern Kansas and western North and South Dakota. The eastern portions of the Dakotas and Nebraska, and south central Kansas have the largest per cent of land available for crops. In all, 58 per cent of the land in the region can be cultivated.



#### Land Area in Crops - Figure 57

The sum of all crop land harvested, all crop failure land, and all idle and fallow land equals the total crop acreage. The percentage of land area in crops is less than the percentage available for crops by the amount of tillable pasture. Approximately 47 per cent of the land in the region is in crops while the state figures vary from 39 to 55 per cent.

## Number of Farms - Figures 58 and 59

The total number of farms in each of the four states for the years 1900, 1010, 1920, 1925, 1930, and 1935, are shown in figure 58. On the basis of the combined figures for all the states in the region the number of farms increase from 1900 to 1910, decrease in 1920, and then gradually increase so that the 1935 figure exceeds that for 1910. The trend in Nebraska is typical of the region but the other states vary in one or more instances. The farms are most heavily distributed through the eastern portion of the region while the west river area in the Dakotas, the sand hills of Nebraska, and southwestern Kansas have a relatively light distribution of farms, figure 59.

# Changes in the Number of Farms - Figure 60

Decreases or sli ht increases occur most frequently in central Nebraska and Kansas, but are also scattered throughout the rest of the region, except the western portion where large percentage increases predominate. There are some scattered areas along the eastern border that show increases of 5 to 15 per cent.



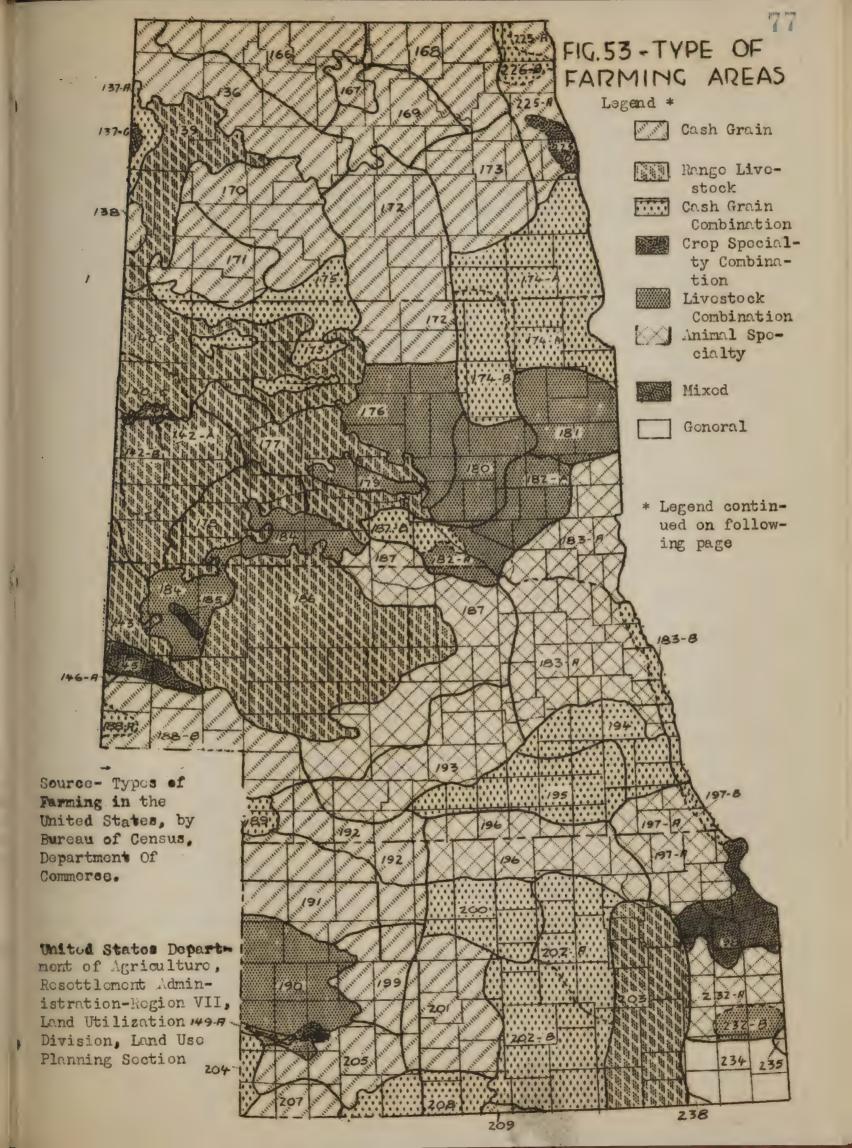
#### Average Size of Farms - Fi ure 61

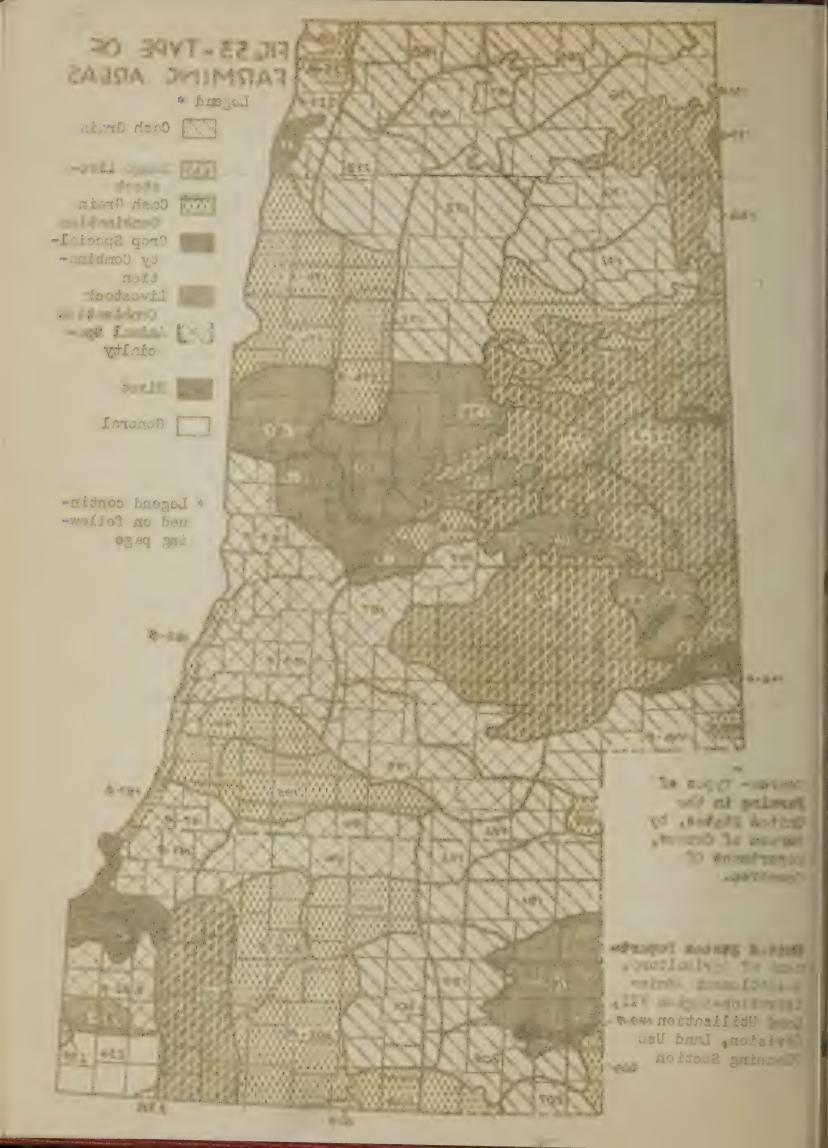
The average sized farm in the region contains 365 acres of land. The state averages vary from 283 acres in Kansas to 496 acres in North Dakota. The smallest farms are located near the larger cities located in Wyandotte county, Kansas, Douglas county, Nebraska, and the surrounding area bordering these counties. The larger farms are located west and north of this area, the sandhills area in Nebraska having the largest, followed by the west river area and adjacent counties in the Dakotas and areas in western Nebraska and Kansas.

## Irrigated Land - Figure 62

portion of the region where rainfall is limited but large supplies of water are available. Only along the Platte river where water is readily available has irrigation been developed extensively in areas of greater rainfall. Approximately 680,406 acros of land in farms is irrigated. Seventy eight per cent of this acreage is in Nebras-ka and 193,816 acros or 28 per cent is in Scottsbluff county, Nebraska. Some of the effects of irrigation on land utilization may be observed by comparing Scottsbluff county with adjacent counties.







## LEGEND: Type of Farming Areas

Arca No. Scobey - Plontywood, N. D. - Cash Grain 136 Missouri-Yellowstone Plains - Cash Grain and Range Livestock, 137 Sugar Boots where irrigated. 138 Golden Valley - Cash Grain North Dakota Bad Lands - Range Livestock 139 Northern Great Plains - Range Livestock, Cash Grain, Alfalfa 140 Belle Fourche - Sugar Beets, Livestock, some Cash Grain 141 Black Hills - Range Livestock, Cash Grain, Hay, some Dairy 142 and Truck in Vestern Part of Area. Miobrara Plains - Range Livestock, some cash Grain, Potatoes, 143 Alfalfa Scod. Scottsbluff Basin - Sugar Beets, some Livestock, Potatoes. 145 Platte Picdmont- Cash Grain, Field Beans, Livestock. 146A Arkansas Valley - Sugar Boots. 149A North Dakota Black Prairies - Cash Grain. 166 Souris Sandy Lands - Cash Grain (Theat and Ryc). 167 North Dakota Black Prairies - Cash Grain. 168 North Dakota Black Frairies - Cash Grain. 169 Missouri Plateau - Cash Grain, Range Livestock. 170 Stark, Hettinger - Cash Grain, some Rango Livestock. 171 Missouri Plateau - Cash Grain, Range Livestock. 172 North Dakota Black Prairies - Cash Grain, General Farming, 173 some Livestock and Dairy. Southeast North Dakota, Northeast South Dakota - Cash Grain, 174 Livestock, General Farming. Pierre Hills and Plains - Cash Grain, Range Livestock, Self 175 Sufficiency (Indian Reservation) Missouri Plateau - Livestock, Cash Grain, General Farming. 176 Pierre Plains - Range Livestock and some Cash Grain. 177 Northern Great Plains Roughlands - Range Livestock, Cash Grain, 178 Self Sufficiency (Indian Reservation) Jones-Lyman - Range Livestock, Cash Grain. 179 South Dakota Black Prairies - Livestock, Cash Grain, General. 130 Brookings - Livestock, Cash Grain, General Farming, Potatoes. 181 South Dakota Black Prairies and Pierre Plains - Livestock Cash 182 Grain. Nobraska-South Dakota - Intensive Livestock Production (Beef, 183 Cattle, and Hogs), Cash Grain and Livestock Along Hissouri River Bottoms. Rosebud Plains - Cash Grain, Livestock, Potatoes. 184 Alliance - Cash Grain, Livestock, Potatoes. 185 Great Plains Sandhills - Rango Livestock. 186 Loess Hills -Holt Sandy Plain - Livestock, Some Cash Grain. 187 Platto High Plains - Cash Grain, Livestock, Potatoes. 188 Sandhills - Cash Grain, Livestock (Less Agriculture than 189 Adjoining Areas)

High Plains - Rango Livestock, Cash Grain

Platte Plains - Cash Grain, Livestock.

Platte - Republican High Plains, Cash Grain, some Livestock.

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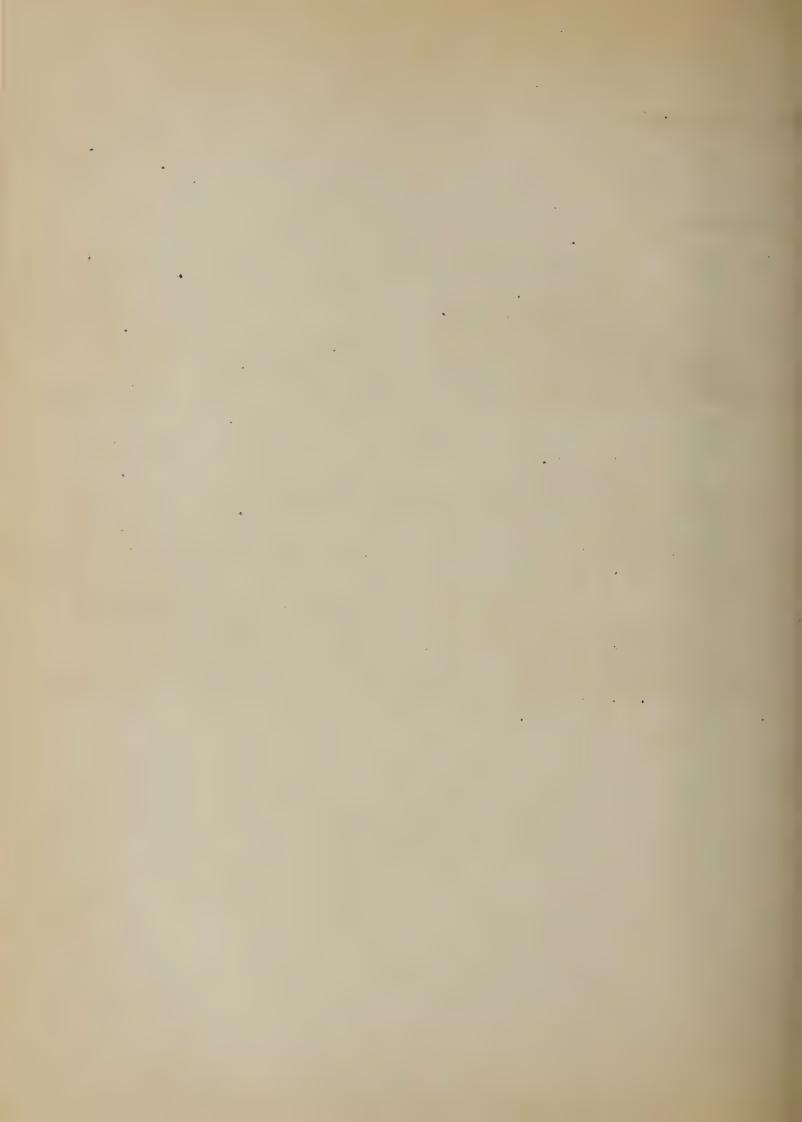
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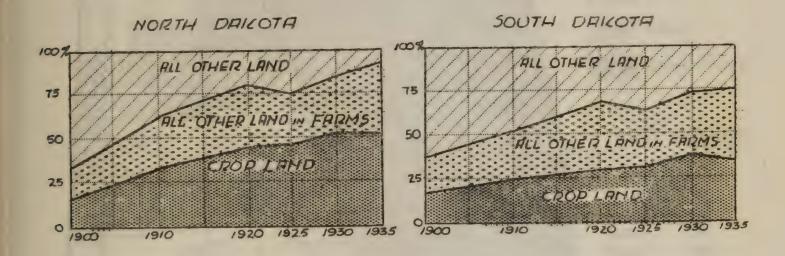


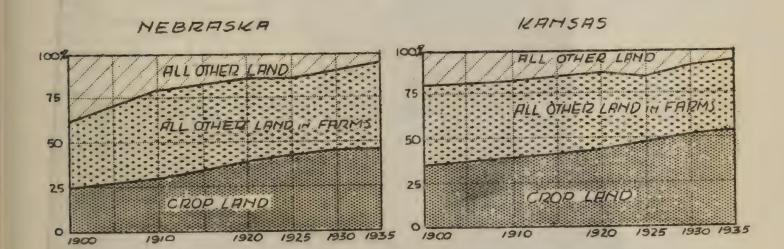
#### Area No.

- 193 Central Nebraska Livestock, General Farming, some Cash Grain.
- 194 Nobraska Plains Cash Grain (Corn and Oats) Livestock.
- 195 Nobraska Plains Cash Grain (Wheat, less Corn and Oats than 194), Livestock.
- 196 Republican Dissected Plains Livestock, Cash Grain, General Farming.
- 197 Northeastern Kansas, Nebraska Livestock, General, Cash Grain, Cash Grain and Livestock in Missouri River Bottoms.
- 198 Kansas City, St. Joseph Livestock, Dairy, Cash Grain, Potatocs, Tobacco, Fruit, Truck.
- 199 Canadian-Cimarron High Plains Cash Grain, some Livestock.
- 200 Smoky Hills Cash Grain, Livestock.
- 201 Great Bond Plain and Sandy Lands Cash Grain.
- 202 Wichita Prairies Cash Grain, Livestock, General Farming, some Dairy in Southern Part of Area.
- 203 Flint Hills Range Livestock, some Cash Grain.
- 204 Canadian Cimarron High Plains Cash Grain, Range Livestock, Broomcorn.
- 205 Canadian-Cimarron High Plains Cash Grain, some Livestock.
- 207 North Texas, Oklahoma Panhandle Cash Grain, some Range Livestock
- 208 Red Hills Cash Grain, Livestock, some Dairy.
- 209 Enid Cash Grain, Goneral Farming, some Dairy and Poultry.
- 225 Red River Valley Cash Grain, Potatoes, Dairy, Livestock.
- 226 N. W. Minnesota Dairy, Livestock, Cash Grain, Potatoes, Clover Seed.
- 232 West Central Missouri-Kansas Livestock, General Parming, some Cash Grain, more Dairy in Southern Part of Area.
- 234 S. E. Kansas-Hissouri General, Livestock, Cash Grain, Self Sufficiency, Part Time.
- 235 Western Missouri General Farming, Dairy, Fruit, Self Sufficiency
- N. E. Oklahoma General Farming, Livestock, Dairy, Toultry, Self Sufficiency.



# FIG. 54 - TREND IN THE UTILIZATION OF THE TOTAL LAND AREA

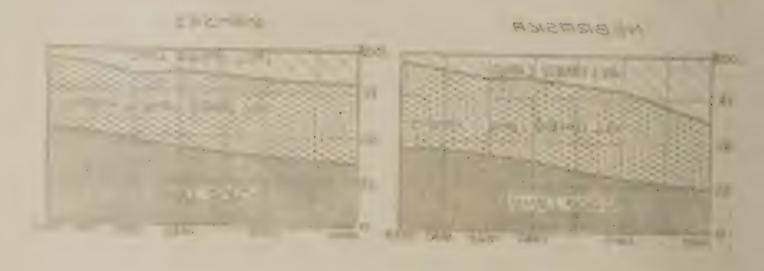




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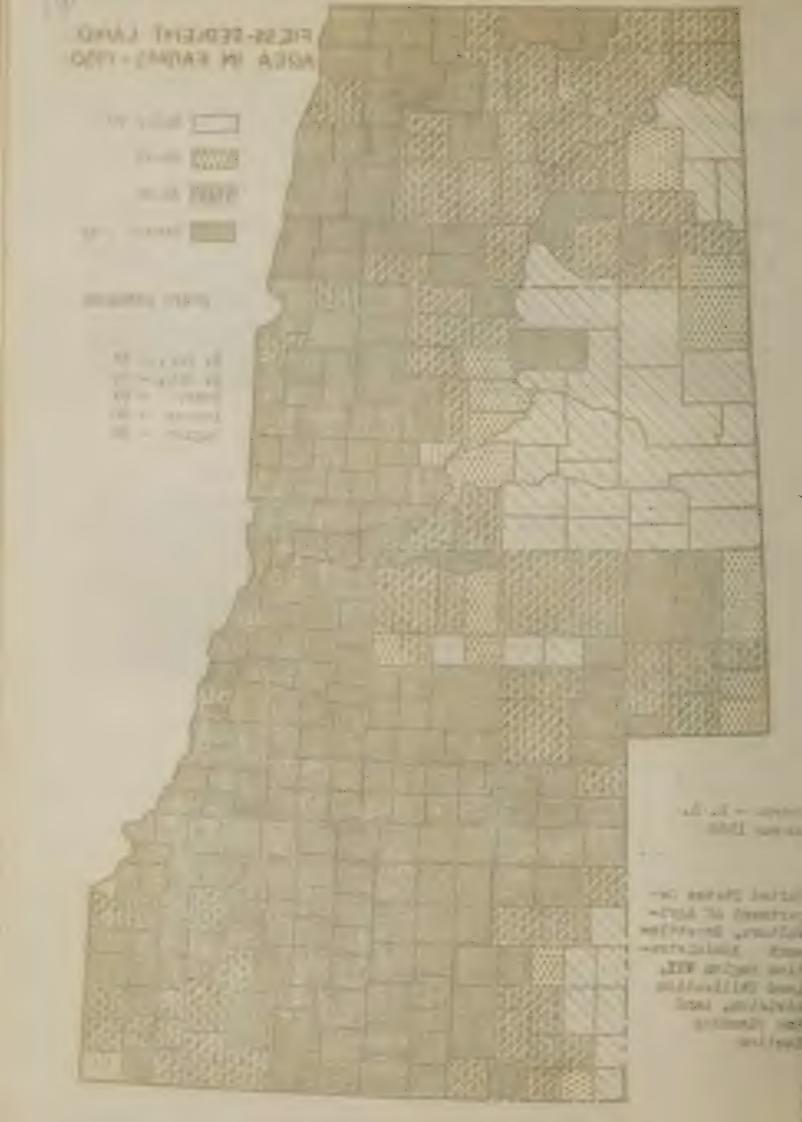


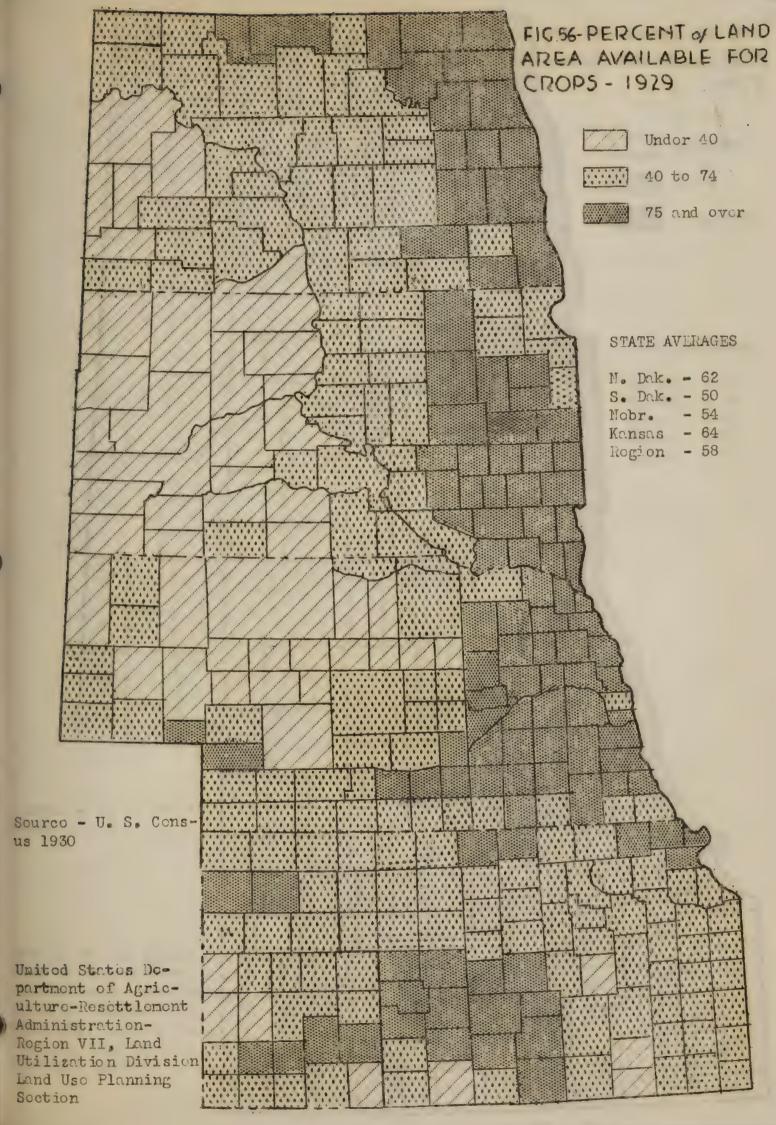


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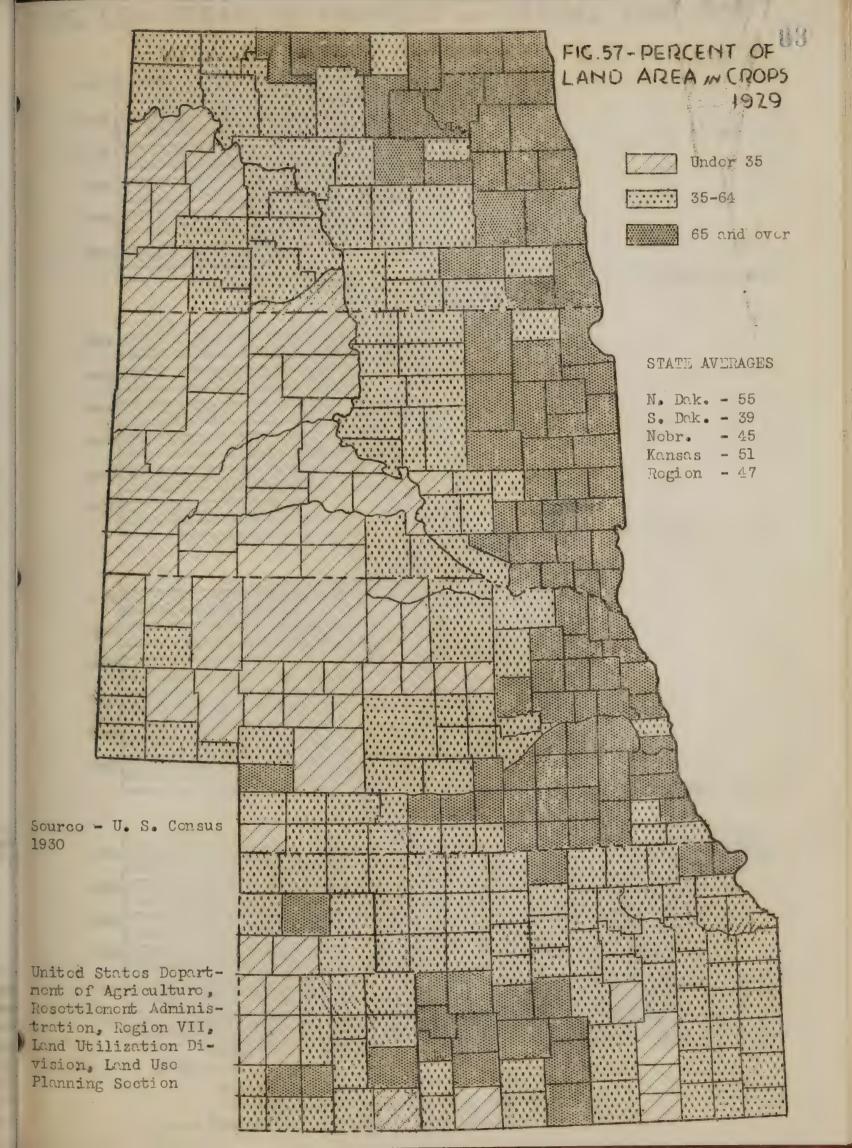
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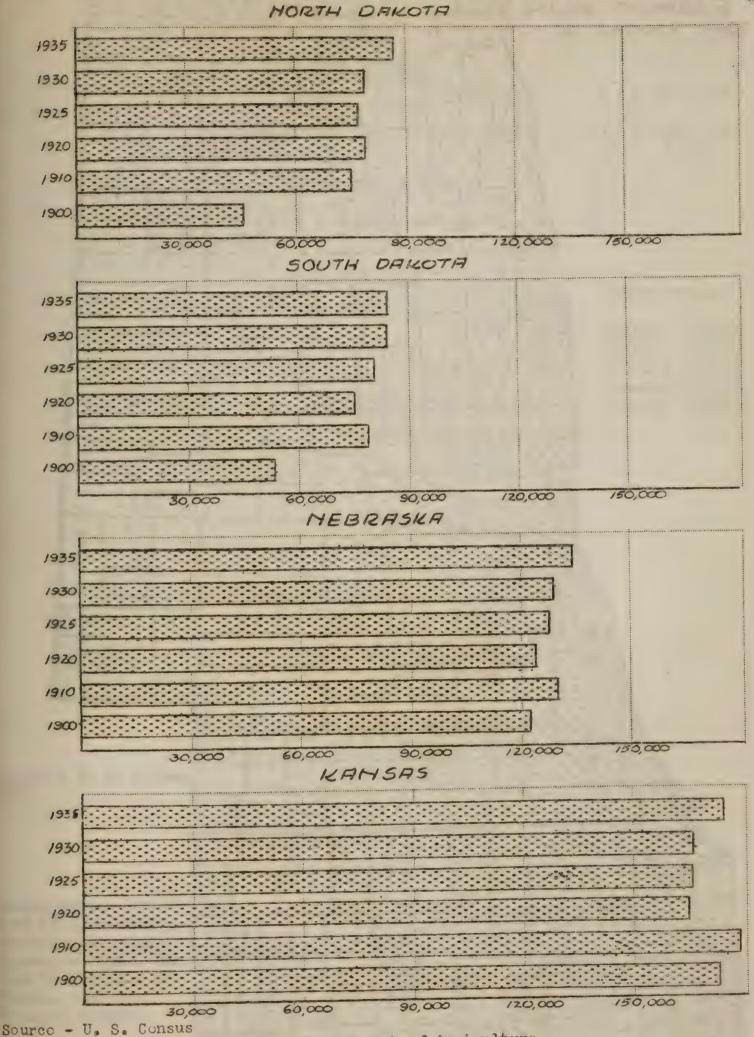




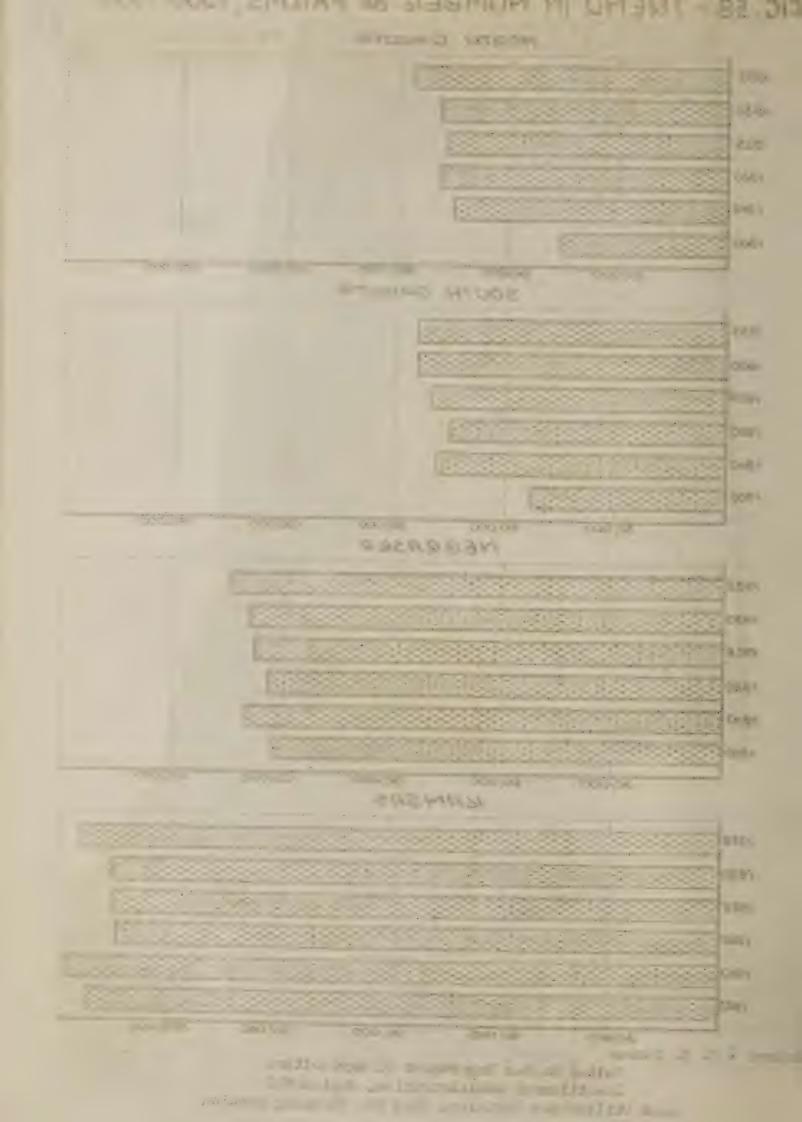


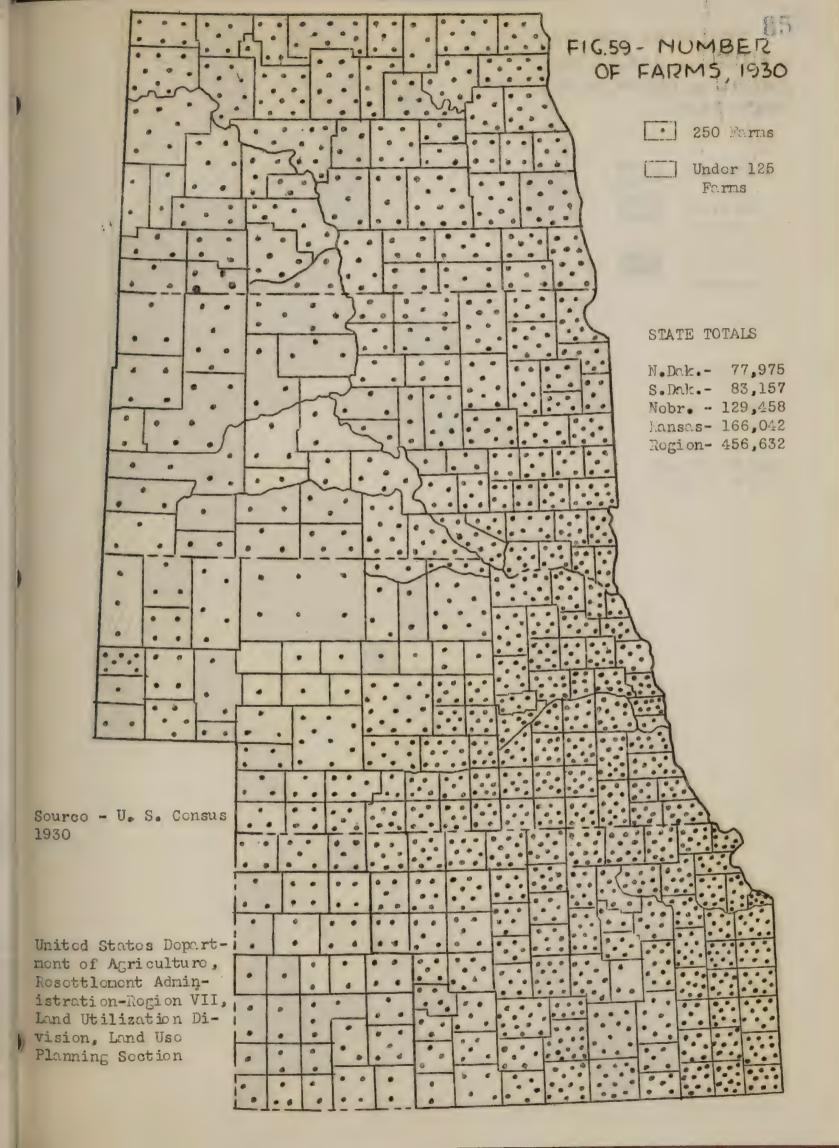




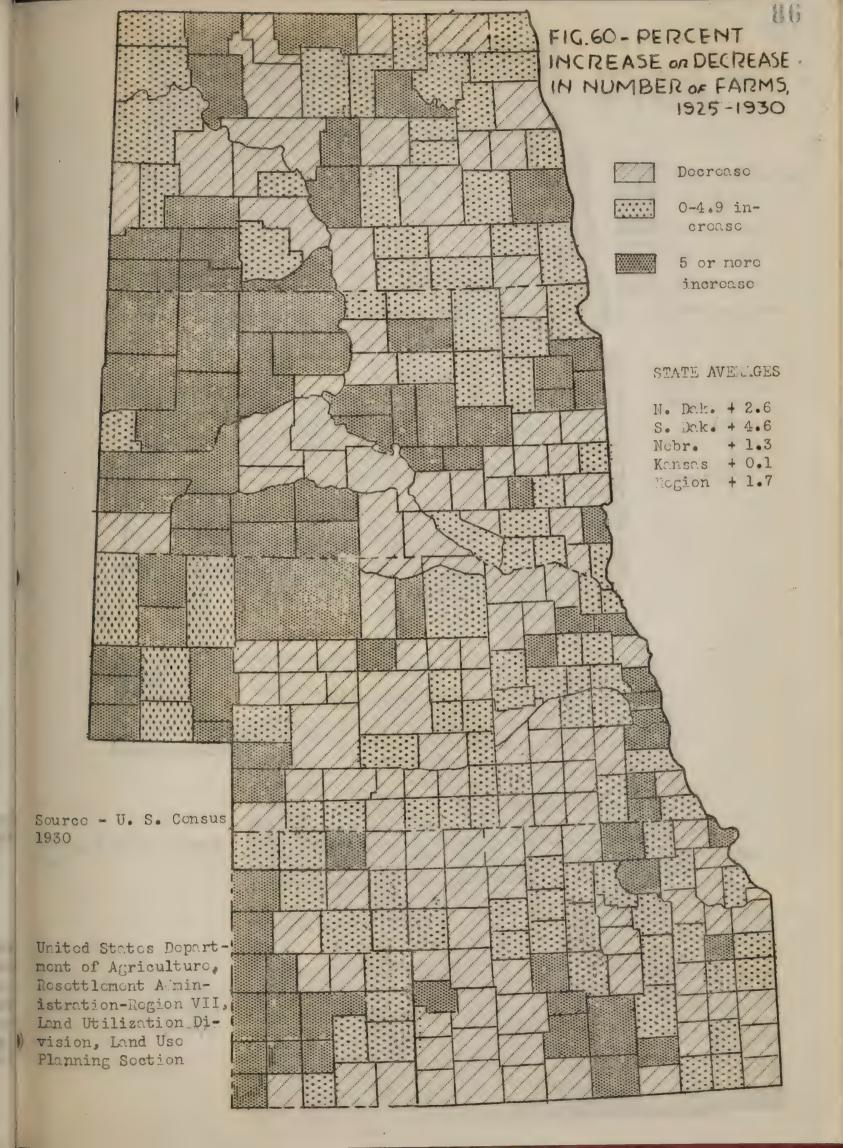


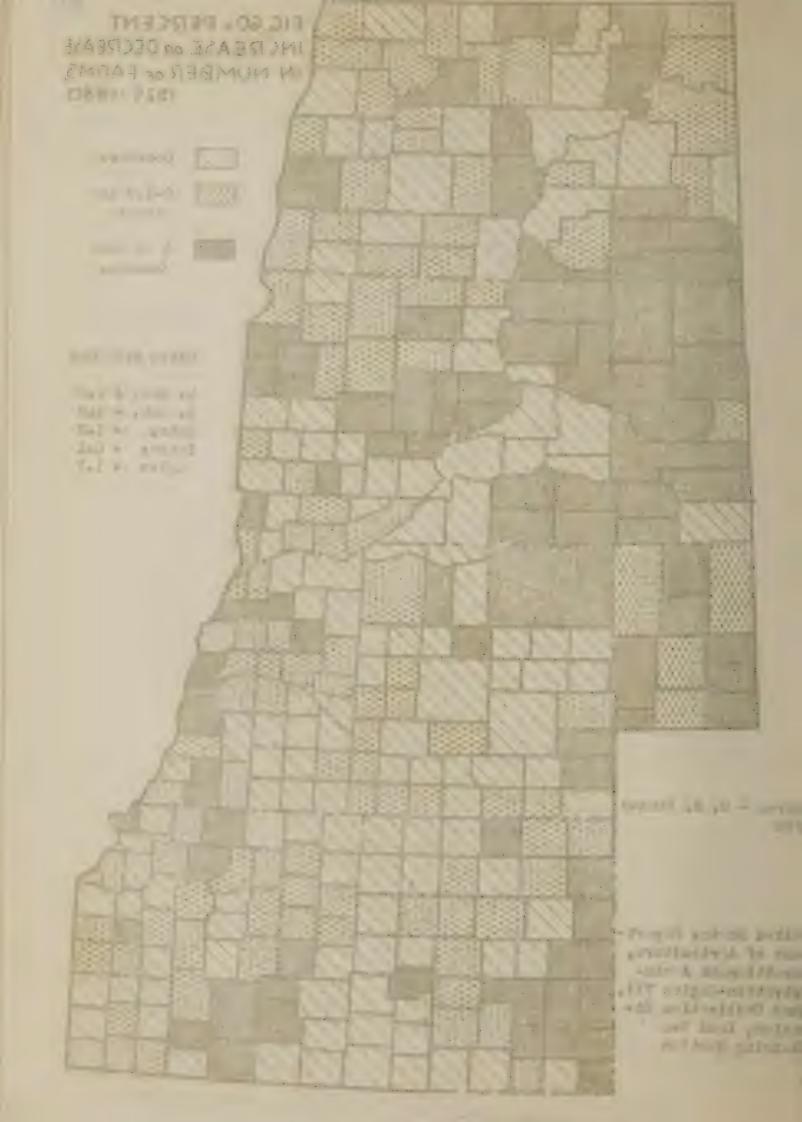
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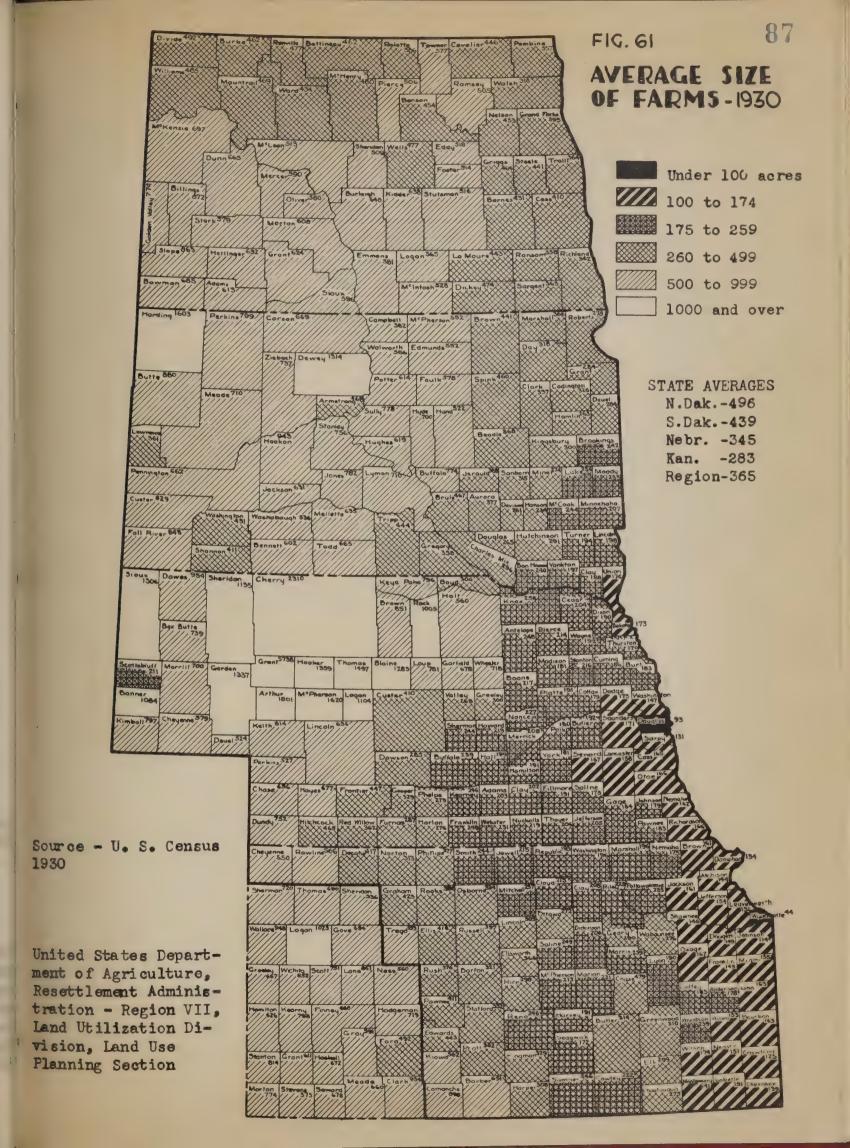




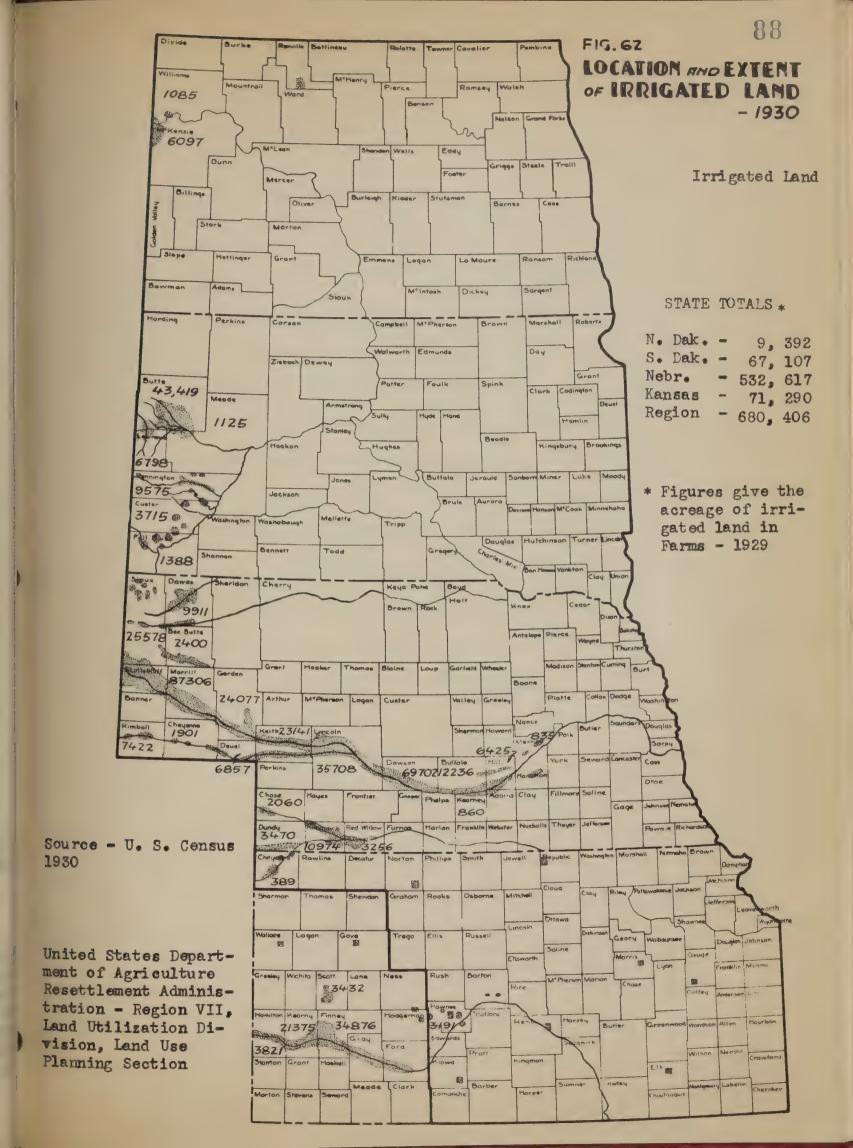












#### Crop Acroages - Figures 63 to 78

The heaviest crop producing areas in the region are located in North Dakota, eastern South Dakota, eastern and southern Nebraska, and northern and central Kansas. The major crops grown are corn, wheat, eats, barley, rye, flax, potatoes, and tame hay, although sorghums, sugar beets, vegetables, and fruits are also important in limited areas. The trend in harvested acreages of all major crops except flax and potatoes, is shown in figures 63 to 68. These charts also indicate the seasonal fluctuations and the relative importance of each crop in the several states. Seasonal fluctuations are numerous and often make for noticeable variances in the general trend.

The most corn is produced in southeastern South Dakota, eastern and southern Nebraska, and northern and eastern Kansas, but at least 2500 to 10,000 acres is grown in every county in the region except a few along the northern border of North Dakota, figure 69. Buch of the crop is cut for fodder, consequently the proportion harvested for grain is very small in some areas, notably North Dakota, figure 70.

The largest wheat producing areas are generally west and north of the important corn producing areas, figure 71. However, in east central Kansas, southern Nebrasha, northeastern South Dakota, and southeastern North Dakota both crops are raised extensively. Neither crop is of much importance in the west river area of South Dakota or the sand hills of Nebrasha.



Cats production is most important in northeastern Nebraska and southeastern South Dakota, Figure 72. The general producing area coincides with that of corn but extends farther north to include northern North Dakota. Oats is of no importance in western Kansas and only small acreages are harvested in the western portion of the region. Barley production is heaviest in North Dakota and northeastern South Dakota where it out-ranks oats in importance, figure 73. The remaining production centers around western Nebraska and northwestern Kansas.

Rye production centers in the area just east of the Hissouri river in North Dakota and north central Nebraska, figure 74. So little rye is threshed in Kansas that no data was collected for presentation in this report. Flax like rye is produced mainly in North Dakota, although considerable quantities are also harvested in South Dakota, figure 75. Since flax production is limited in Nebraska and Kansas production data is smitted for those two states.

Cornercial production of petatoes centers in the Red River valley of northeastern North Dakota, central eastern South Dakota, western Nebraska, and northeastern Kansas, figure 76. Scattered acreages are also located in many counties in the eastern half of the Dakotas and Nebraska.

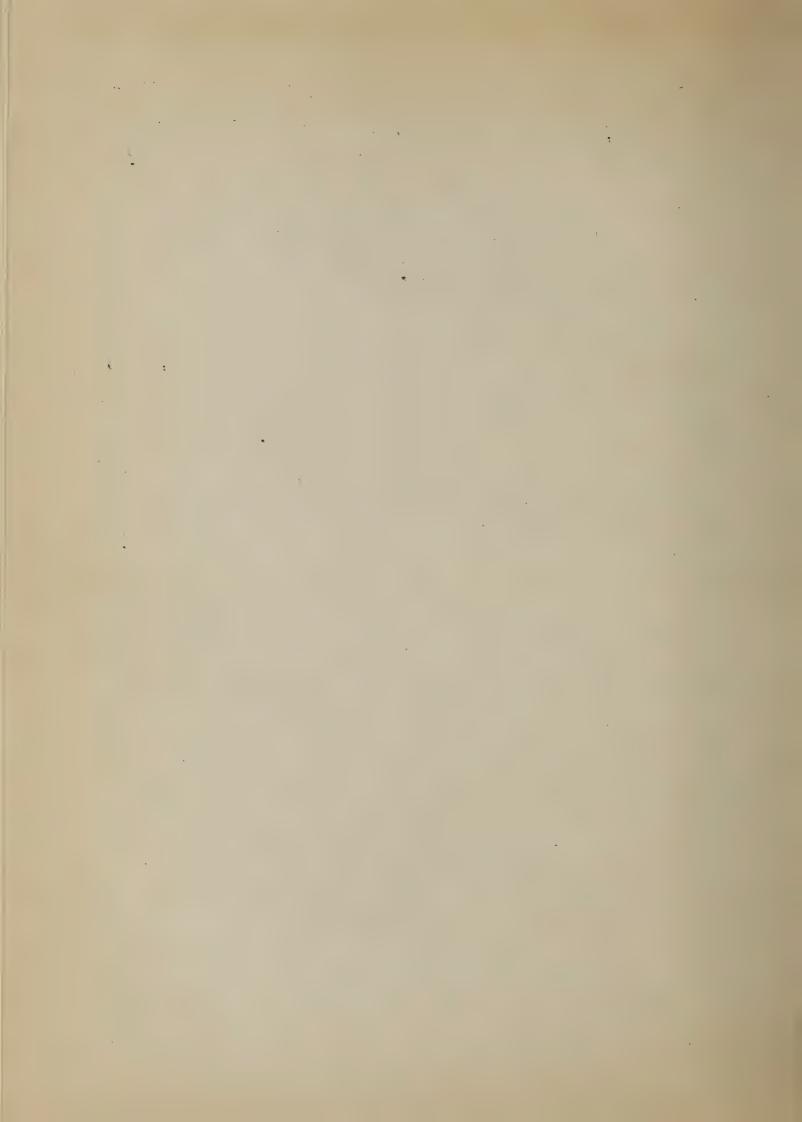
All tame hay includes timeth, all legumes, and all tame grasses saved for hay, figure 77. Freduction is well distributed throughout the region although heaviest in the eastern portion.

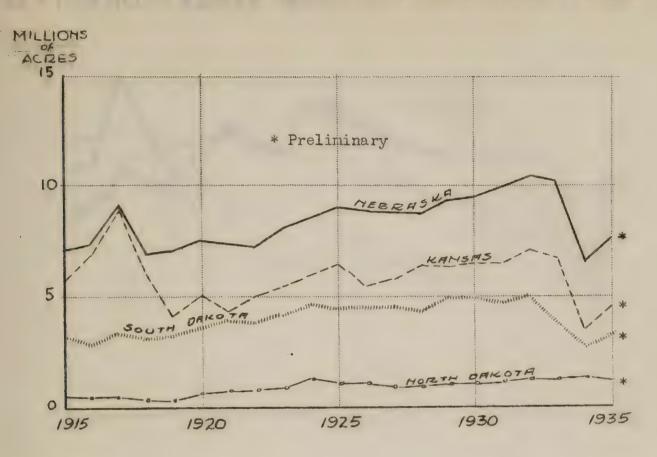


Nearly three-fourths of the acreage in tame hay is devoted to alfalfa, figure 78, and only North Dakota, with approximately 40 per cent
of the total tame hay acreage in alfalfa, falls below this figure.
Clovers are more important in all areas where alfalfa production is
relatively low, except for a small section of southeastern Kansas
where considerable timothy is grown.

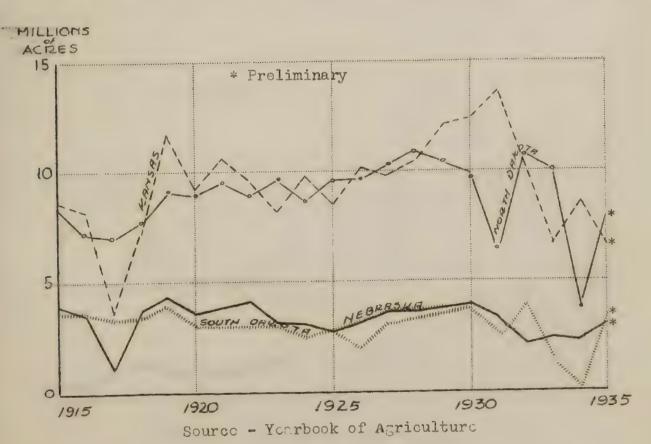
### Crop Yields - Figures 79 to 86

The average yields of corm, wheat, eats, barley, rye, flax, potatoes, and all tame hay are based on figures furnished by the State and Federal Statisticians of the four states. Averages are computed from 1923 to 1932 yields where possible, otherwise available sources are used. The highest yields of all crops are obtained in the south contral portion of the eastern section of the region. Because of the relatively advantageous place corm production holds in this limited area all other crops except eats have been forced into other areas, figures 69 to 78. The lowest yields generally occur in southwestern Kansas, north contral Nebraska, and the contral Dakotas. A comparison of the yields of the eastern and western sections of the region reveals a loss marked change than might be anticipated. If the average yields had been computed on the basis of acros seeded rather than acros harvested the western section.



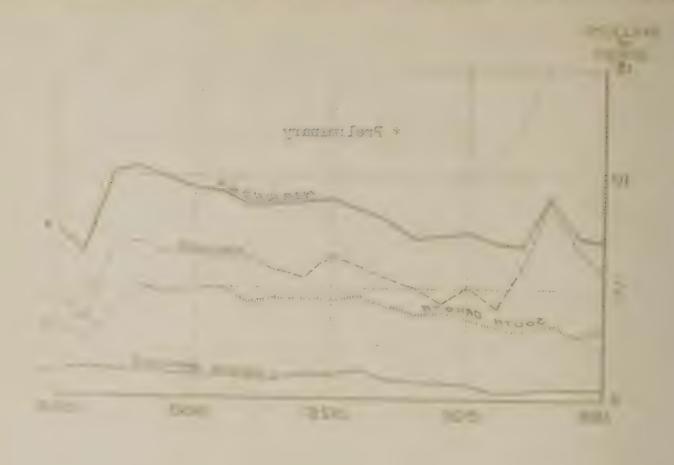


## FIG. 64 - TRENDIN WIHEAT ACREACE HARVESTED, 1915-1935



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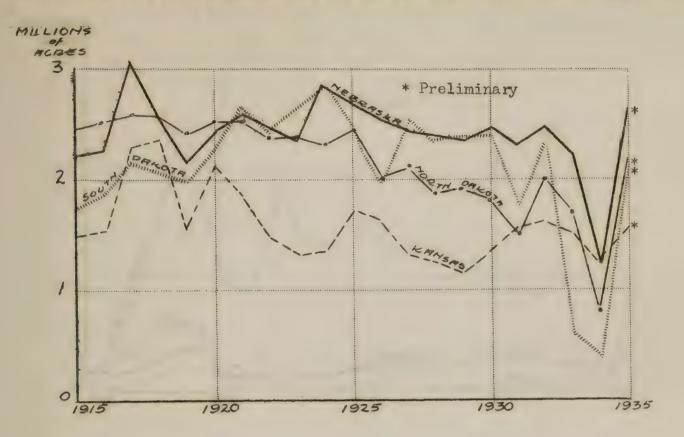
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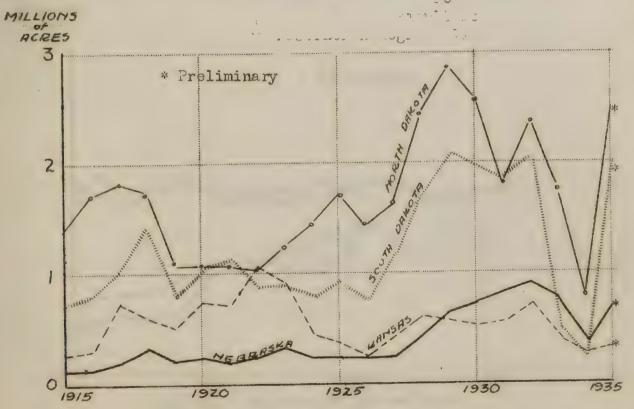
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### FIG. 65 - TREND IN OATS ACREAGE HARVESTED 1945 - 1935



## FIG. 66 - TRENDIN BARLEY ACREACE HARVESTED 1915-1935



Source - Yearbook of Agriculture

United States Department of Agriculture Resottlement Administration - Region VII Land Utilization Division, Land Use Planning Section

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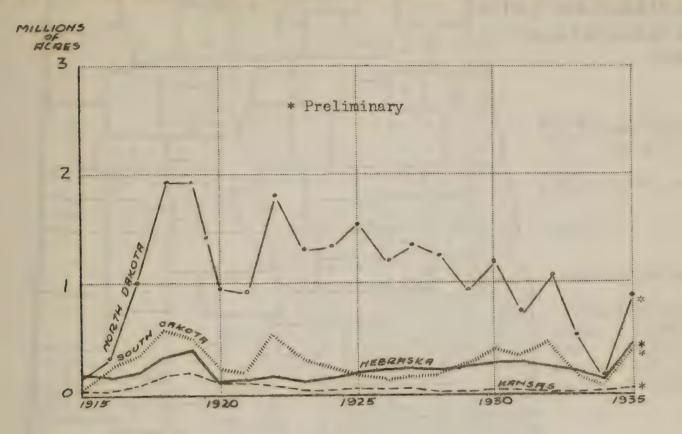
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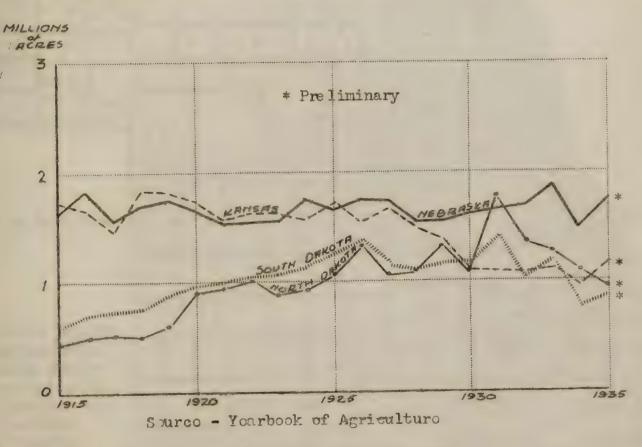
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## FIG. 67 - TREND IN TRYE ACREAGE HARVESTED 1915-1935



## FIG. 68- TREMD IN TAIME HAY ACREAGE HARVESTED 1915-1935.



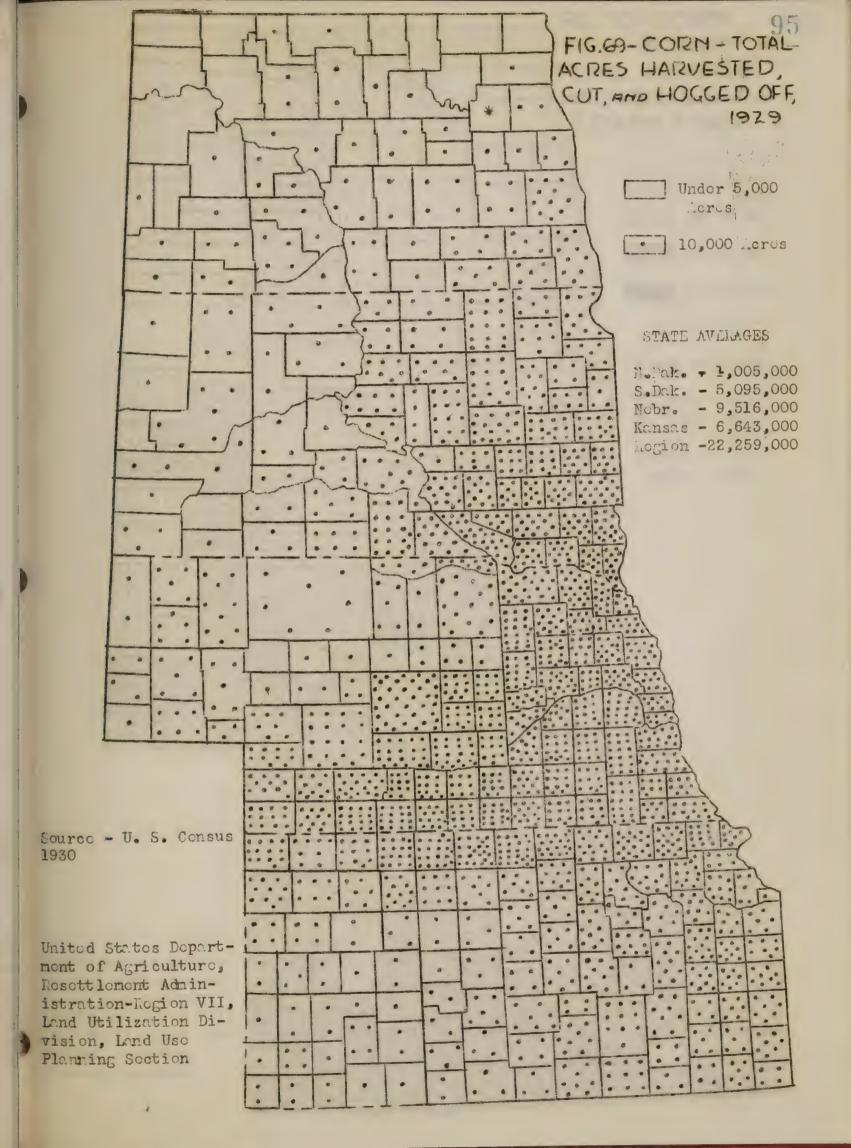
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# SIGNET - TREND - RYE ACREACE HARVESTED -----

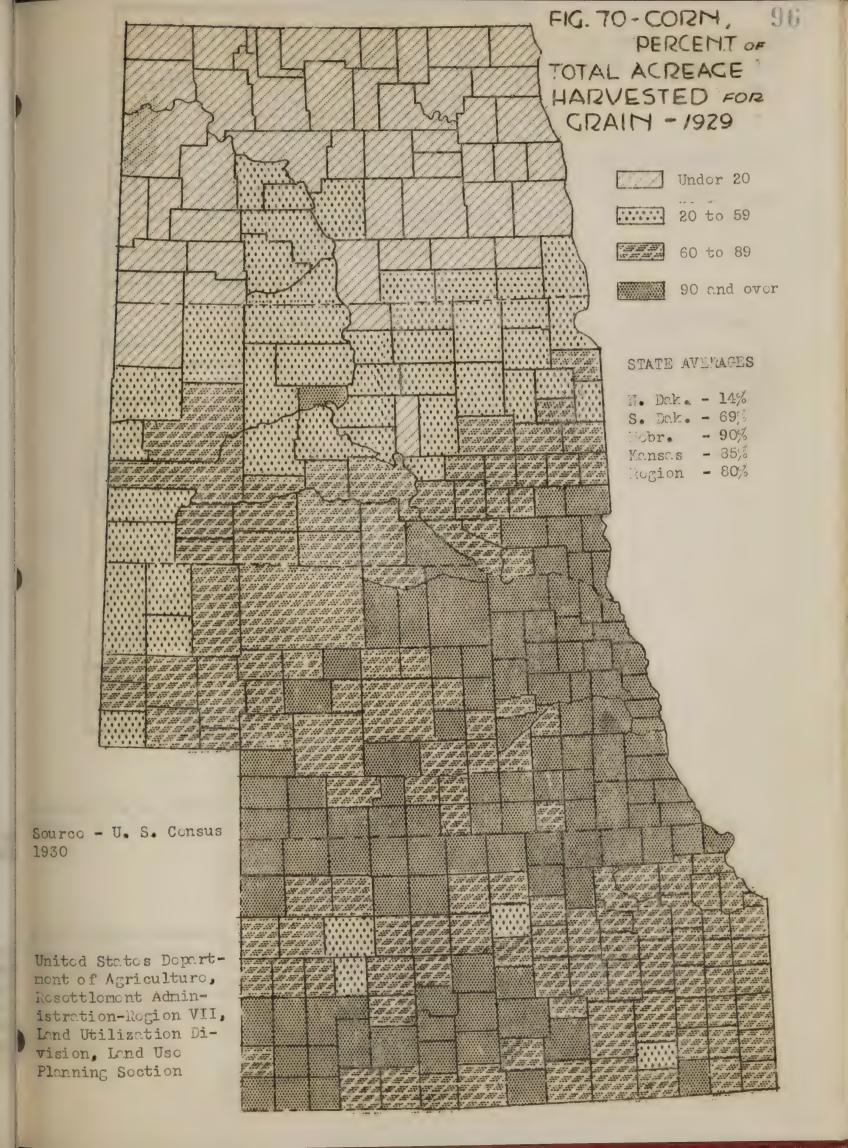


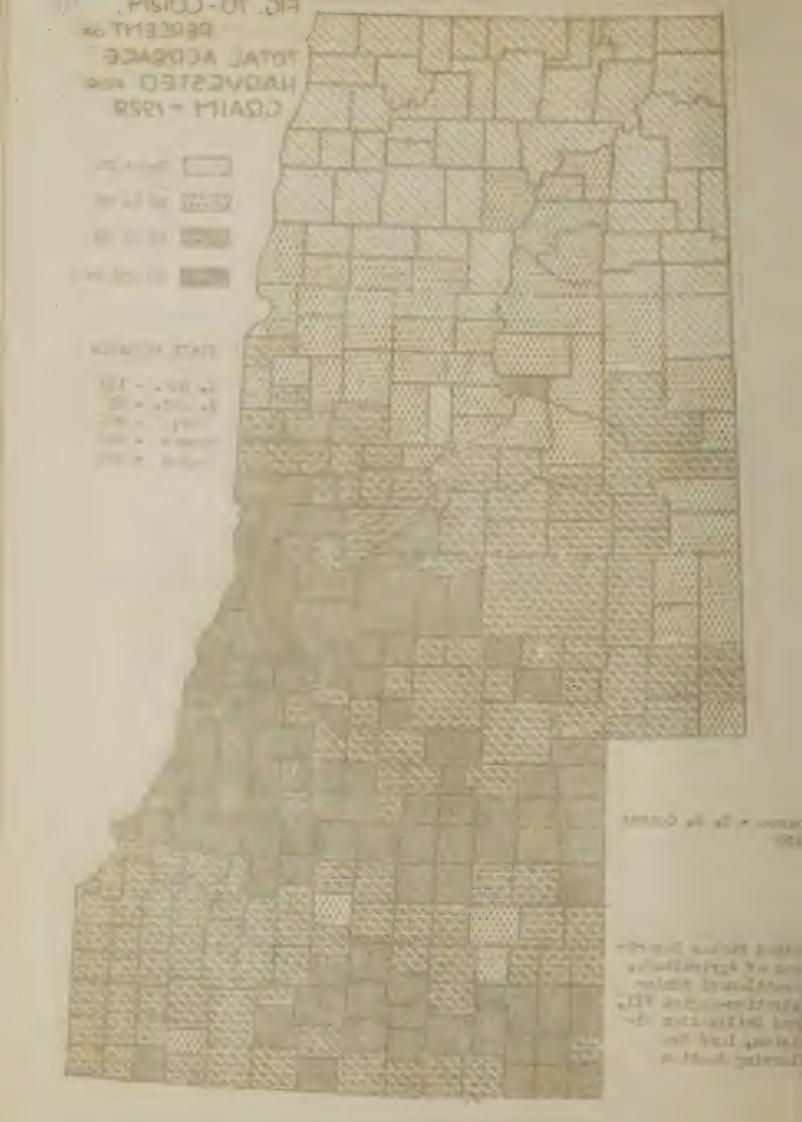
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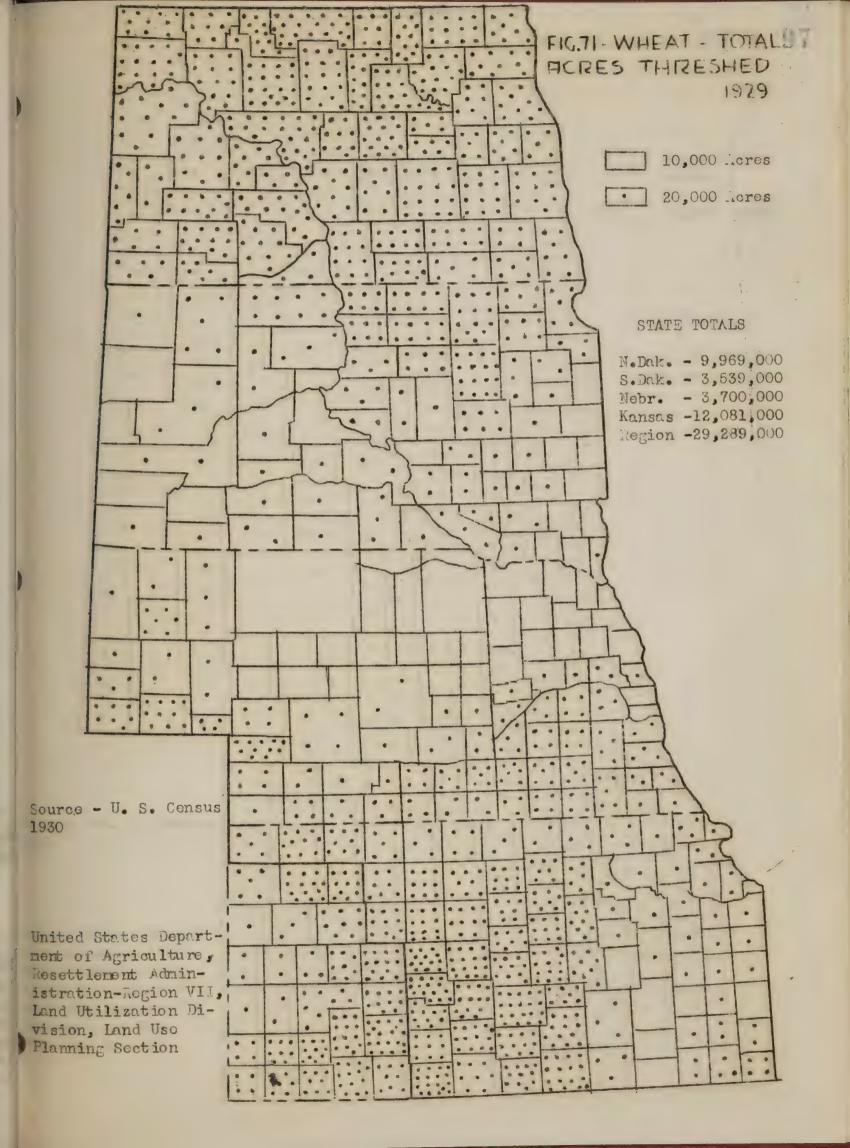








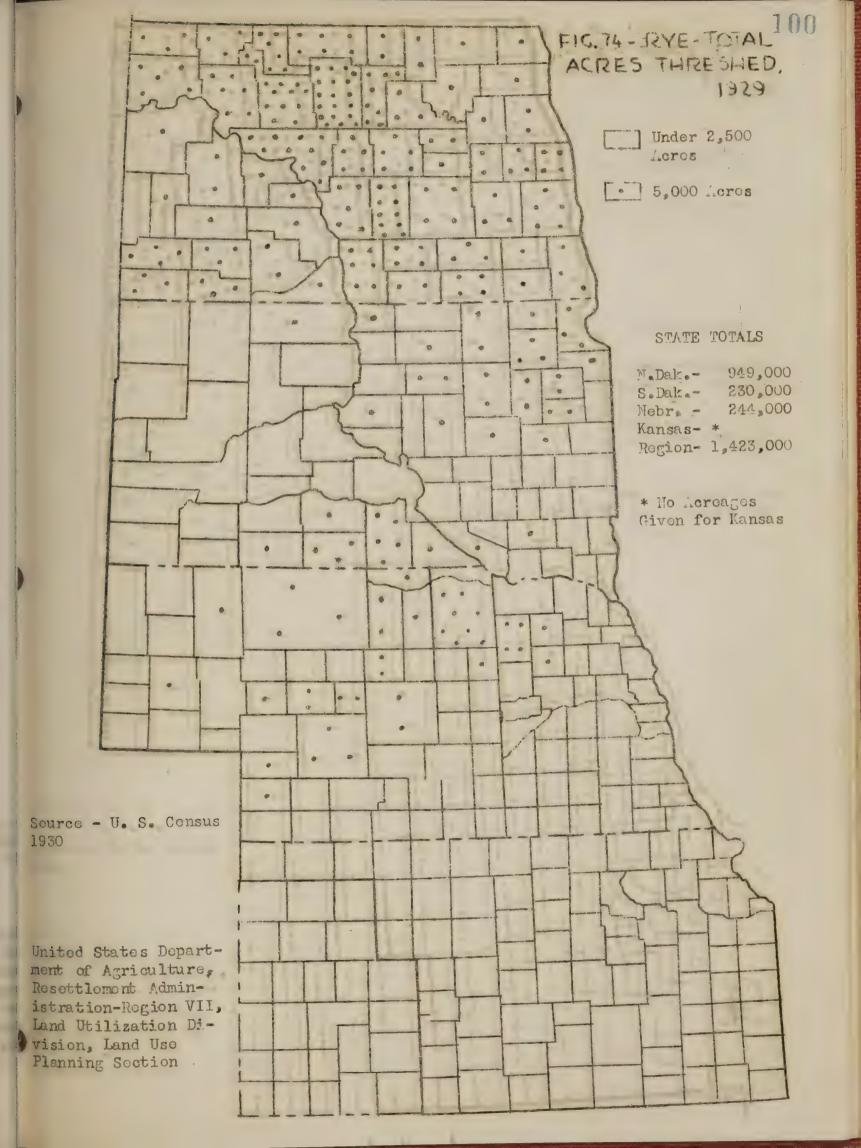






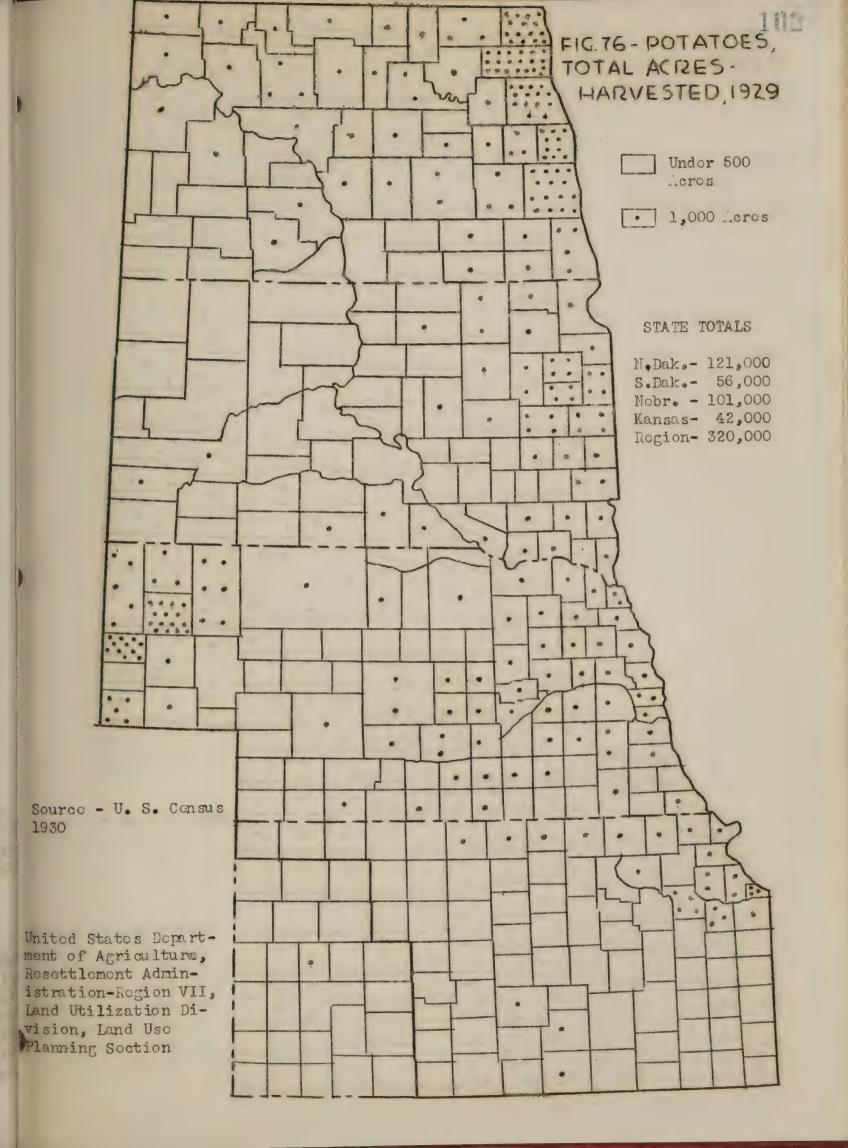




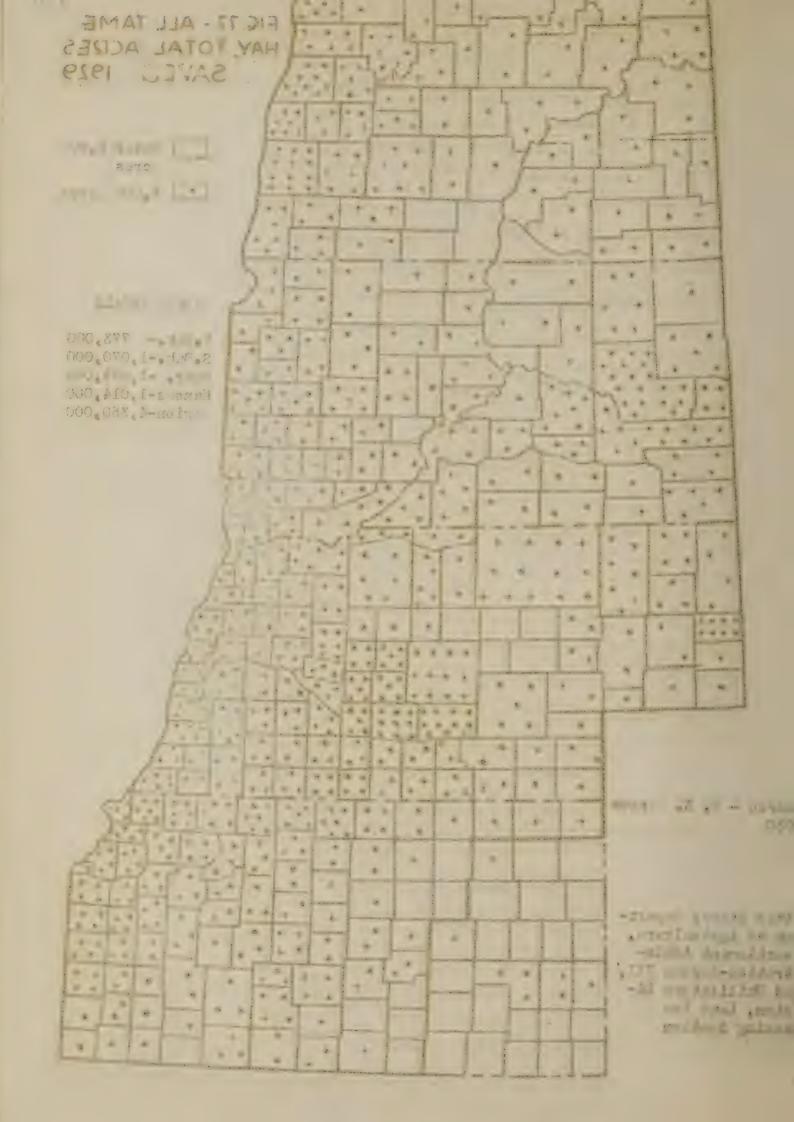


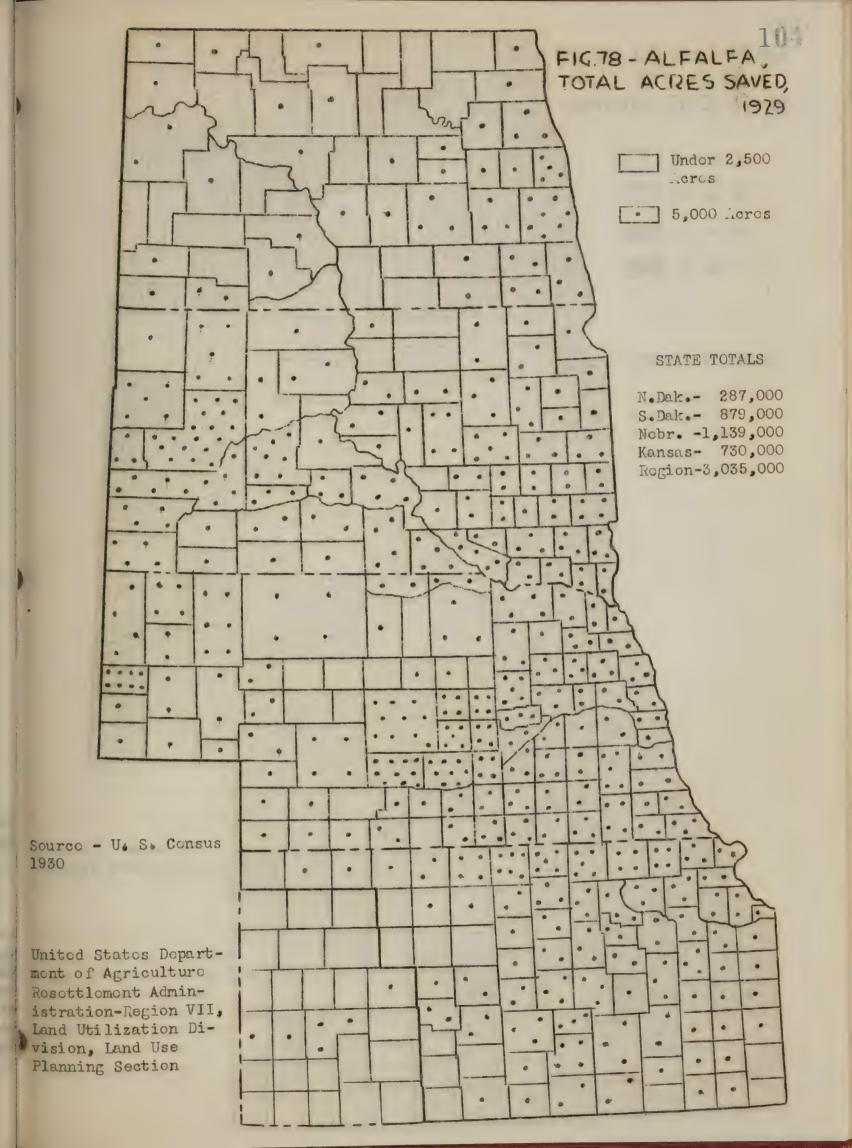




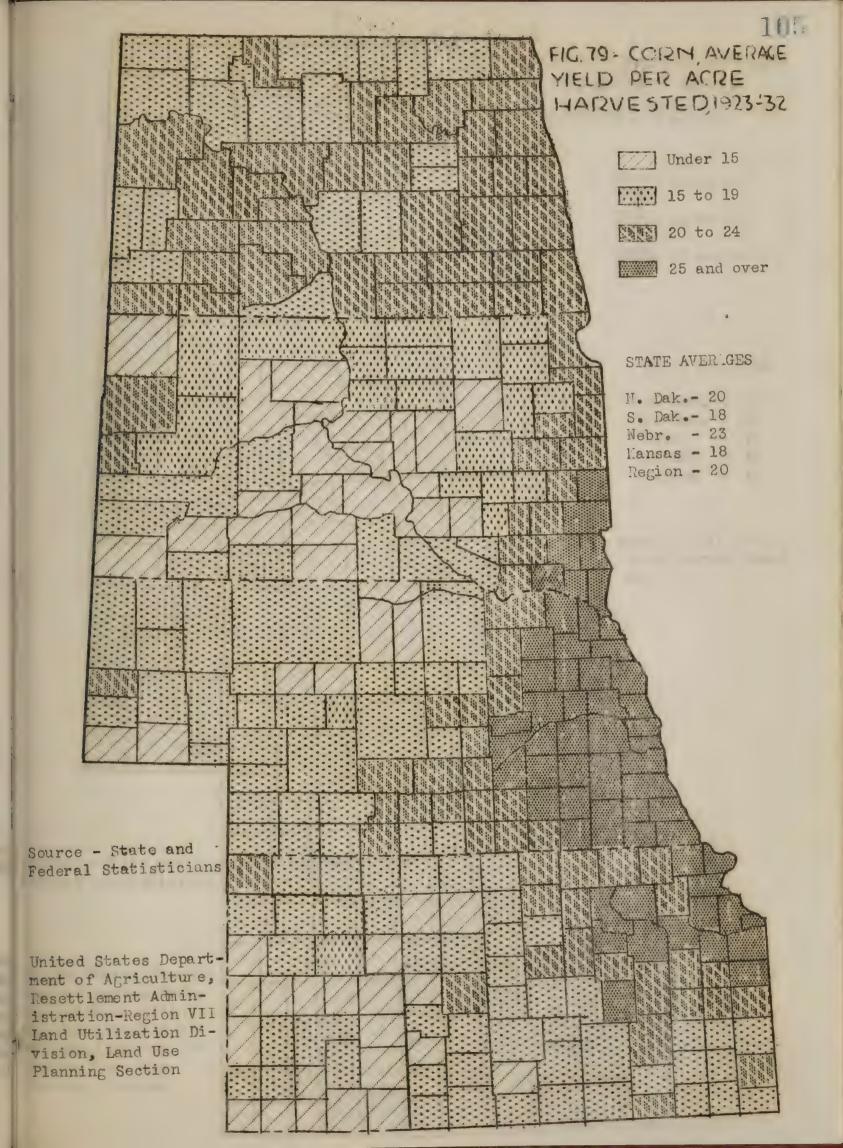




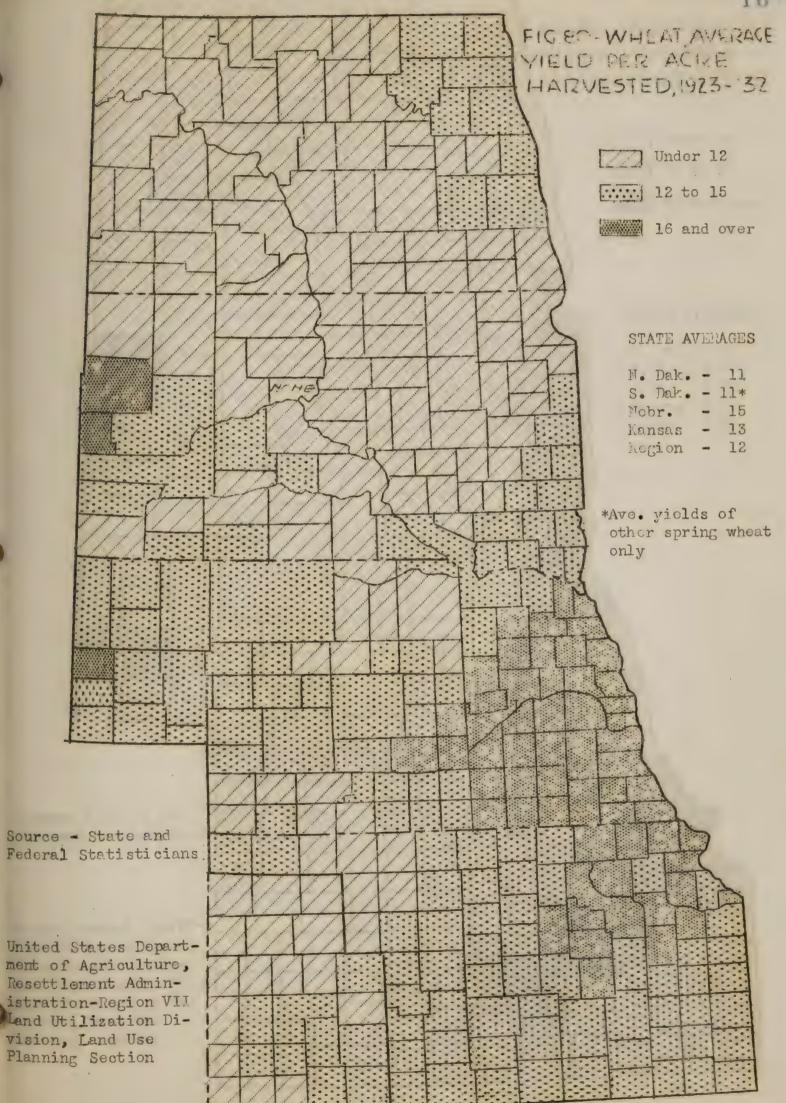




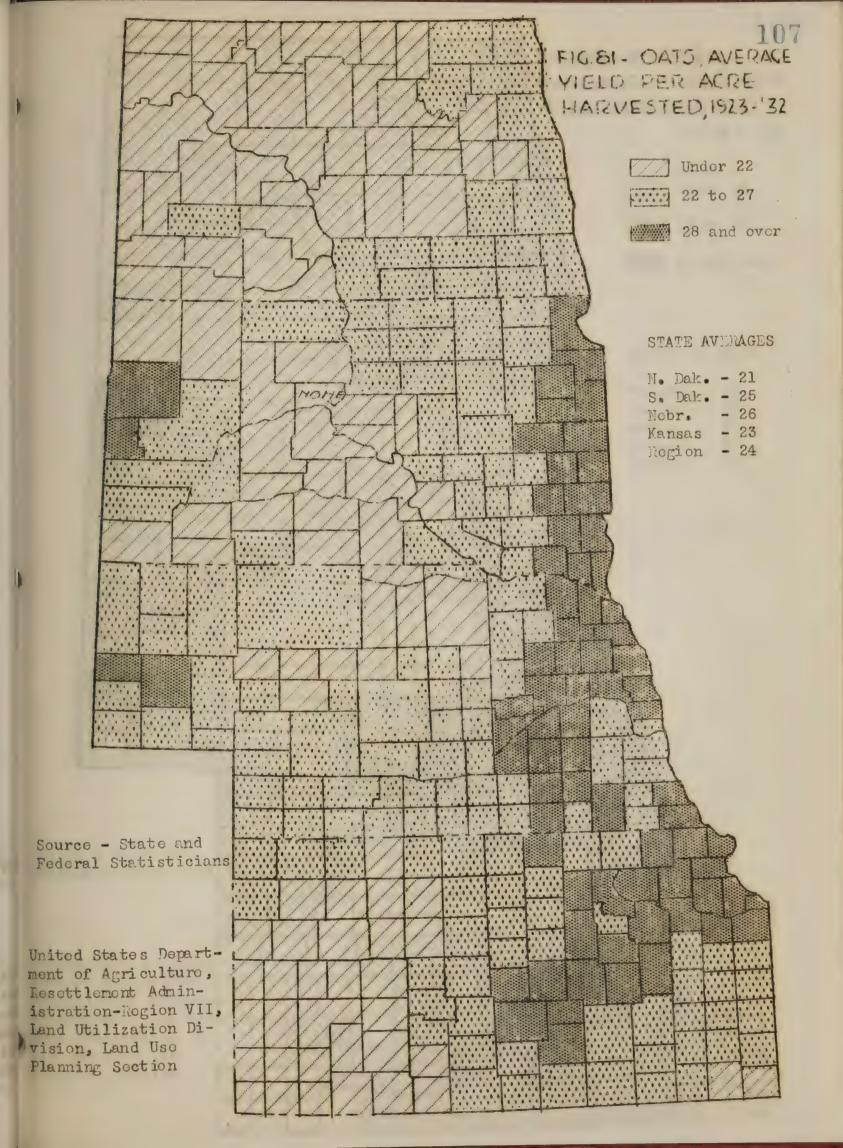


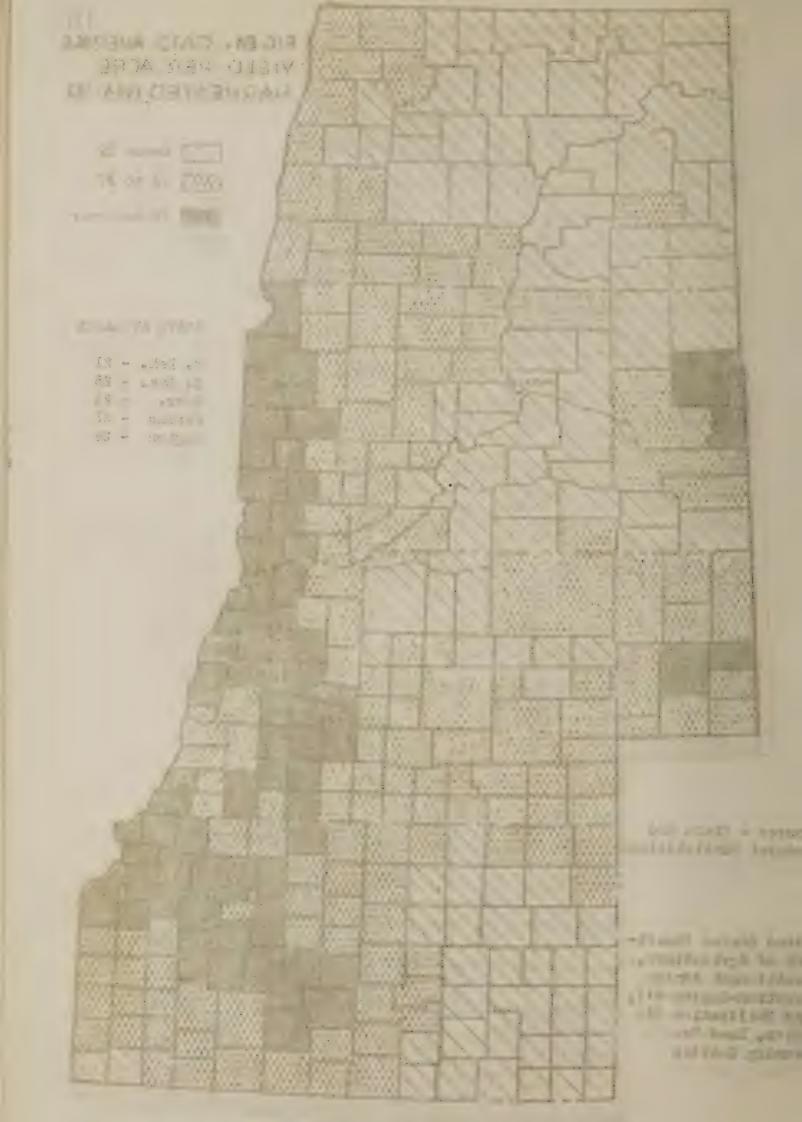


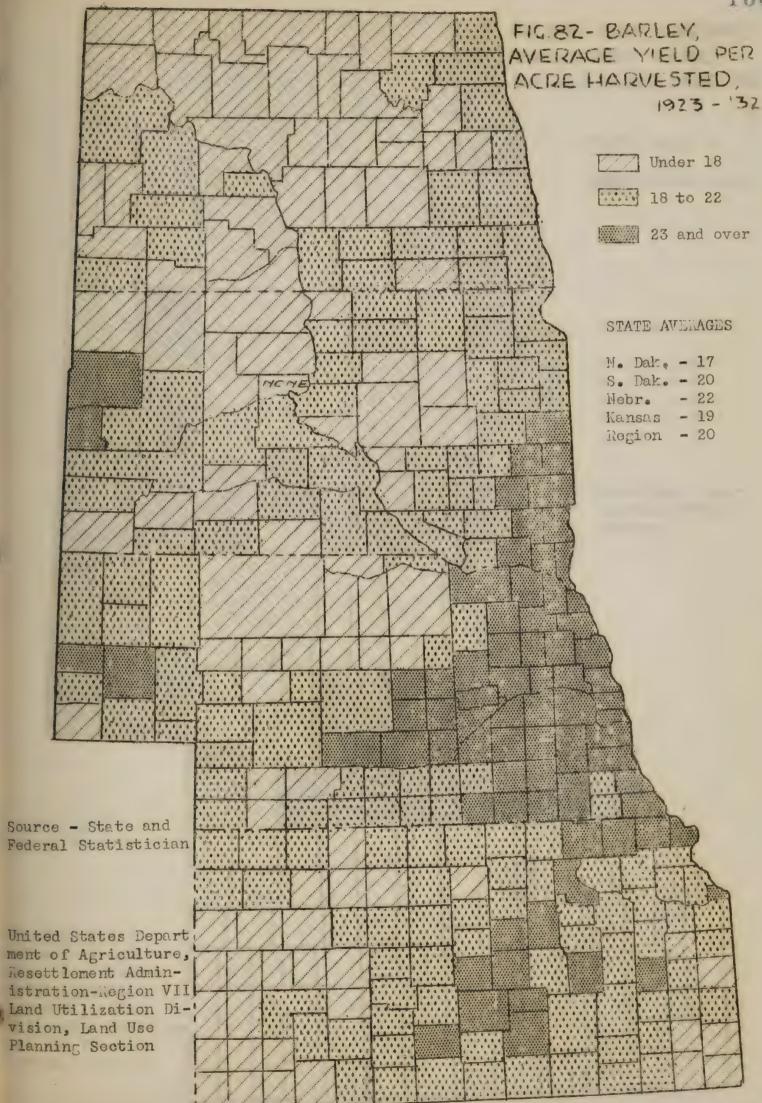


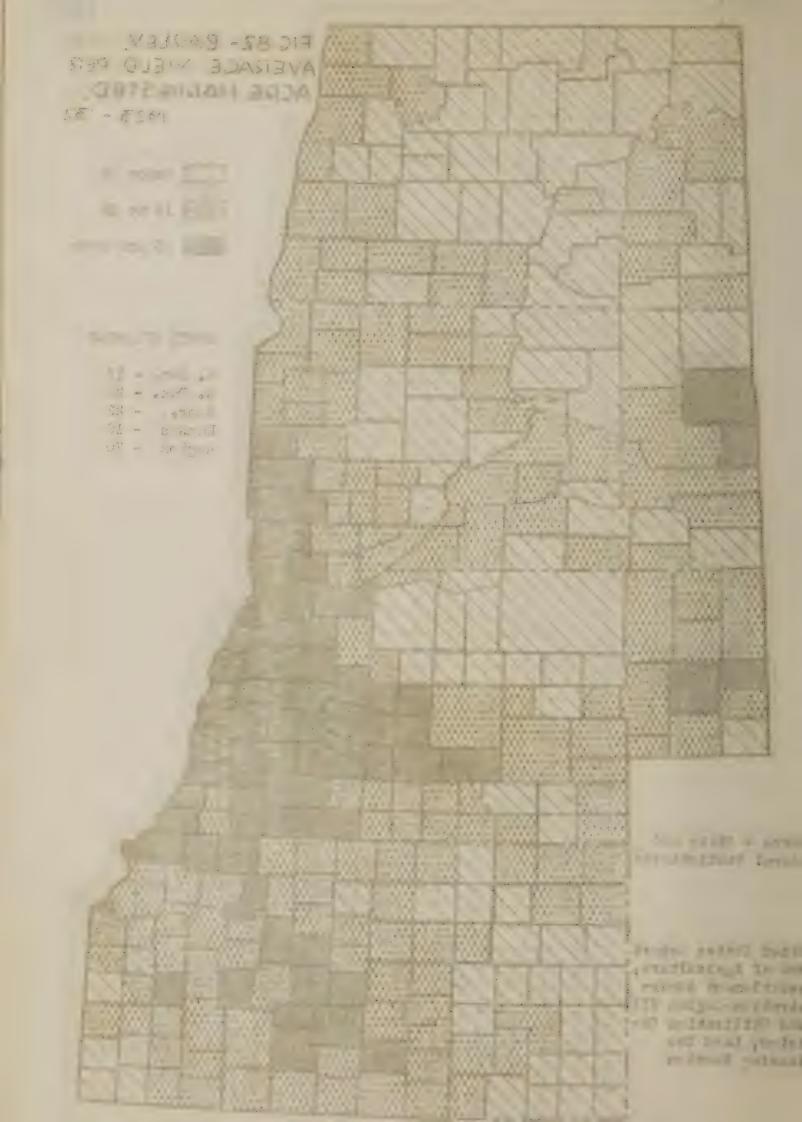


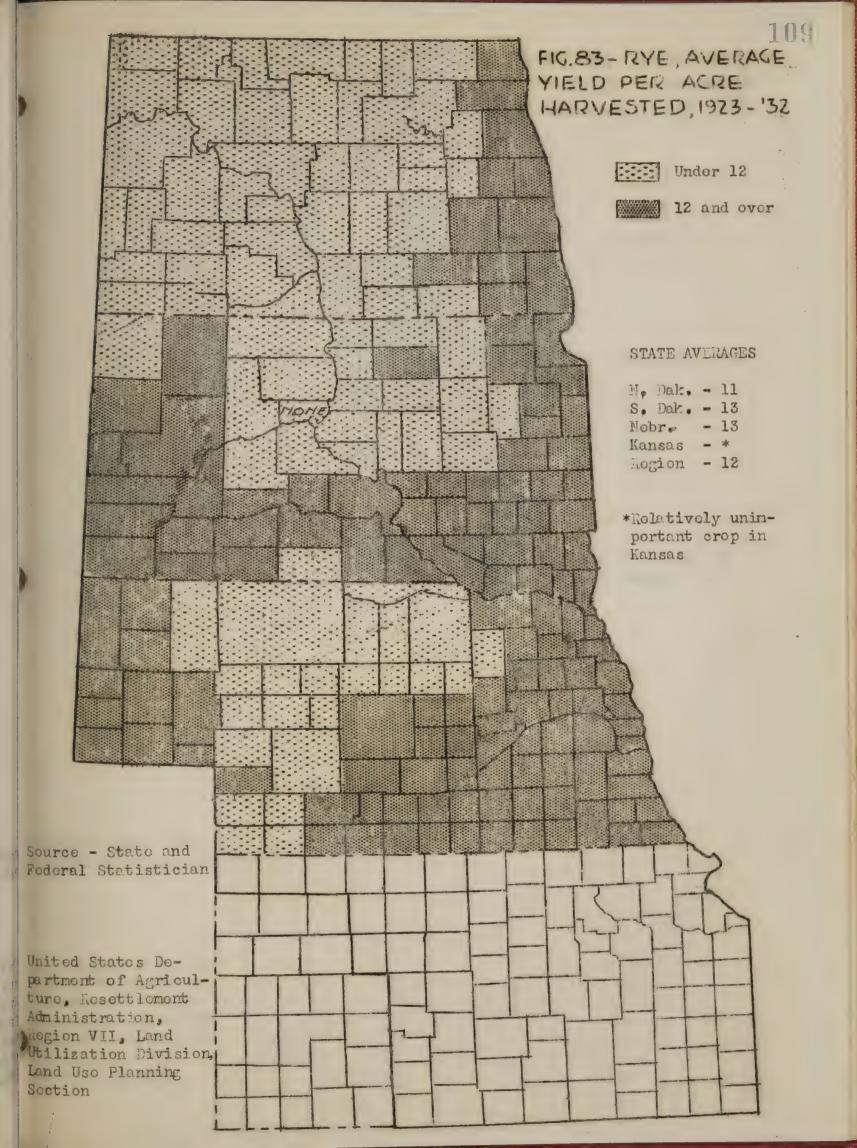


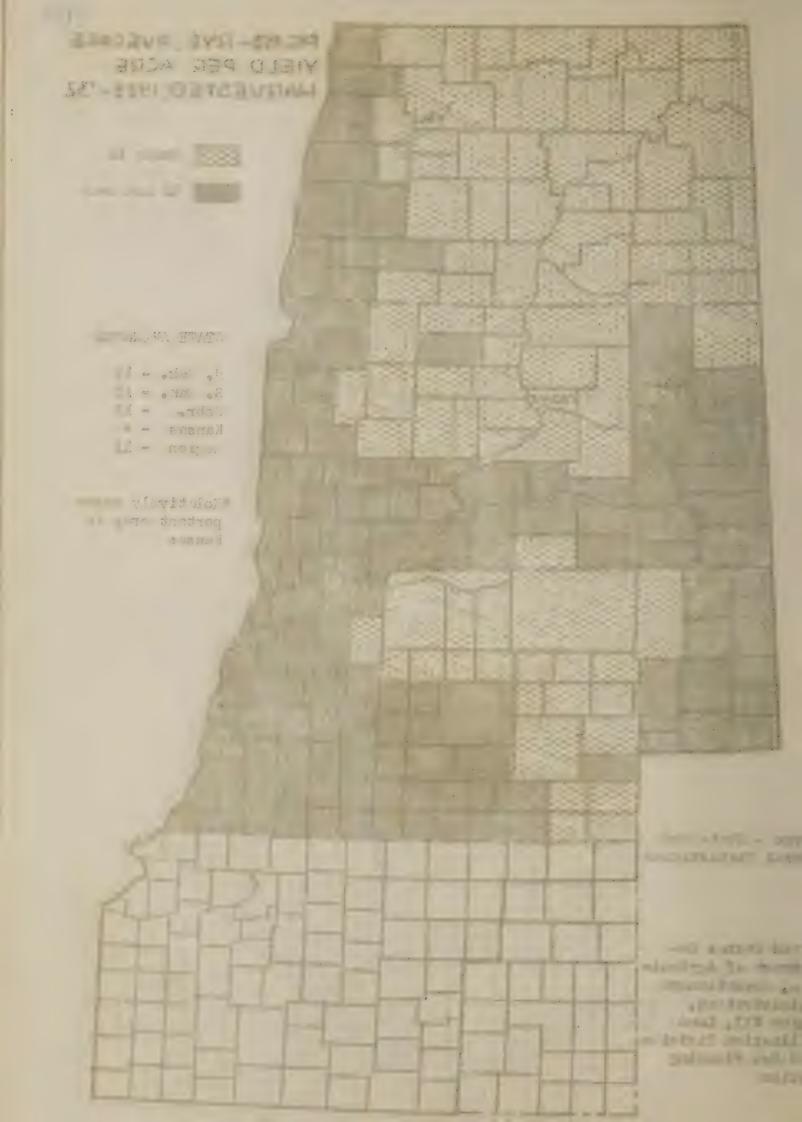


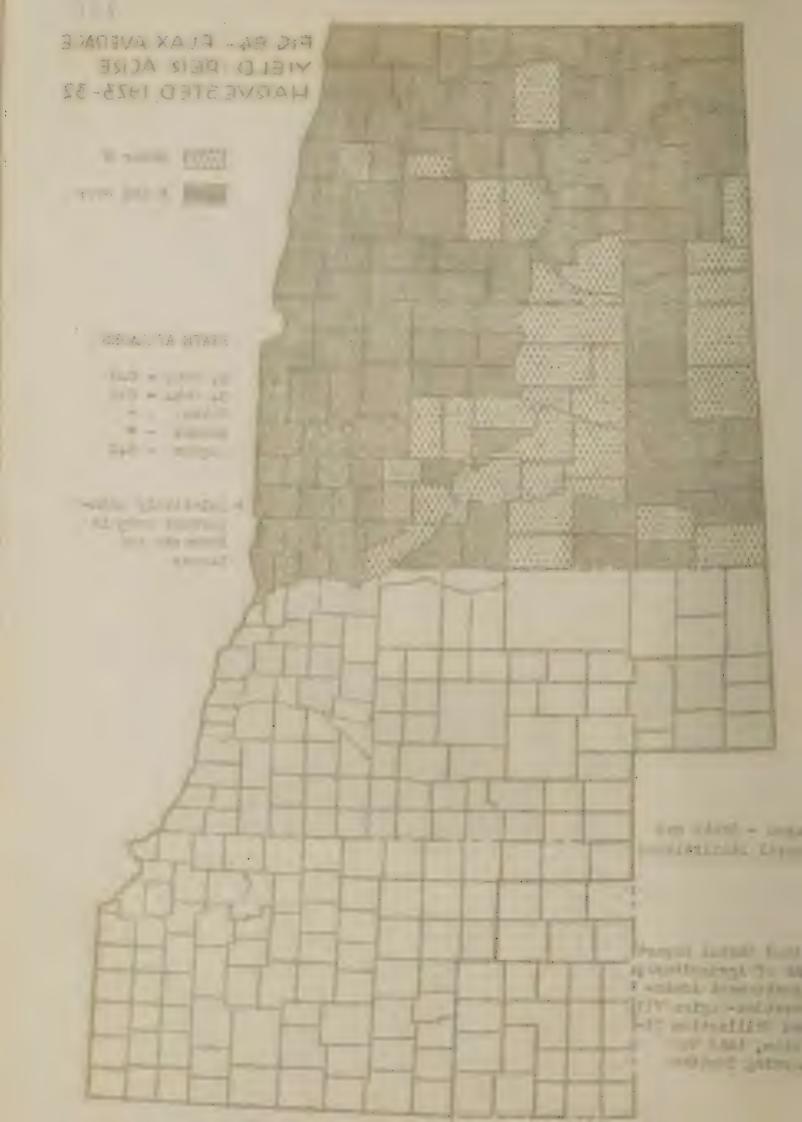


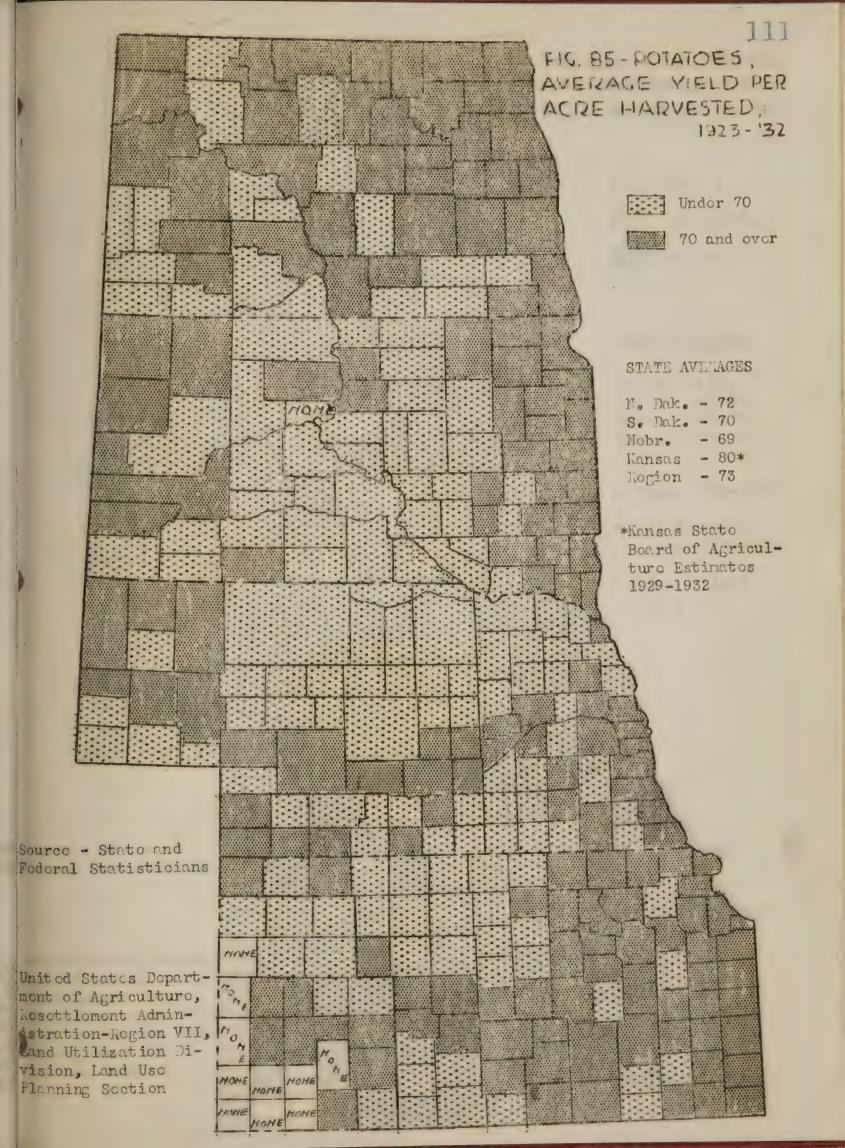




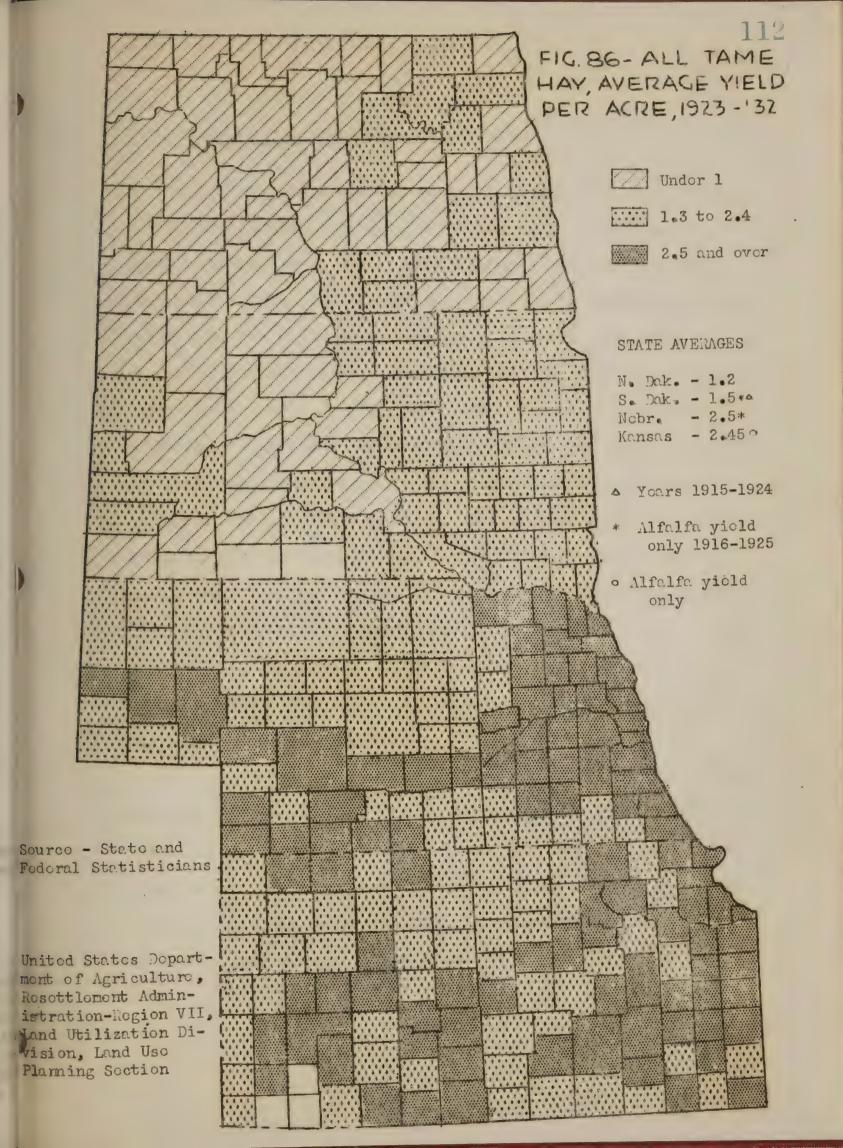


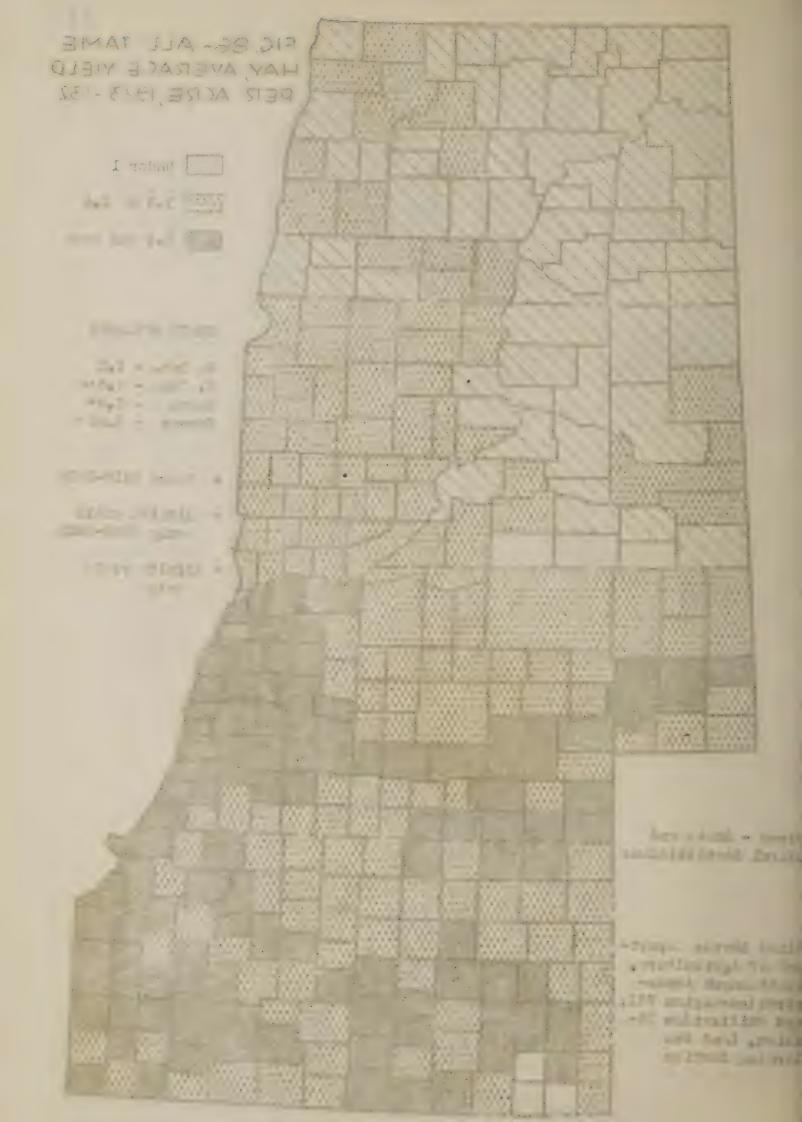












## Distribution of Livestock - Figures 87 to 97

Figures showing the trend and distribution of horses and mules, cattle, sheep and hogs are included in this section. The trend in numbers from 1915 to 1935 is given in figures 87 to 90. Particular information observed from these charts includes: (1), the steady decrease in the number of horses and mules since 1920; (2), the cyclical fluctuations in the number of hogs in all the states except North Dakota; and (3), the general increase in the number of sheep. Figures 91 to 95 show that livestock production is well developed throughout the region but that different classes tend to concentrate in particular sections. For example, there are proportionately more horses and nules in the general corn and oats producing area; cattle production is relatively more important in two areas; namely, the range country and the corn and hog section; hog production is concentrated in the larger corn producing areas; and sheep production predominates in the range lands of the Dakotas and northeastern North Dakota.

The distribution of all livestock in terms of animal units is shown by figures 96 and 97. To convert the different kinds of livestock into animal units the following standards were used: One horse or nule; one cow, bull or steer two years or ever; two calves, heifers, bulls, or steers 4 months to 2 years; five hogs or sheep; and one hundred chickens to equal one animal unit.



On this basis, the total number of animal units in each county were determined and this figure divided by the number of sections and farms in the county to ascertain the animal units per section and per farm.

On an average there are 44 animal units to each section in the region. The largest number are found along the eastern central area which not only has a high productive capacity but also feeds the crops raised. Much of this area is designated as an animal specialty area in the type of farming map, figure 53. Areas having fewer animal units may derive a larger share of their income from eash crops, may practice a strict grazing economy, and may be physically less able to support a given number of livestock. The western portion of the region is affected most by these factors.

A comparison between the different sections of the region on the basis of the number of animal units per farm shows that the west river area of the Dakotas, northwestern and north central Nebraska, central western Kansas, and scattered counties along the eastern border have the largest number. Northern North Dakota, northeastern South Dakota, southeastern Nebraska, and eastern and south central Kansas have the fewest animal units per section. The areas having the highest ranking are in general classified in the type of farming map, figure 53, as range livesteck, animal specialty, or livesteck combination areas, while the low ranking sections are designated as eash grain, mixed or general type of farming areas.

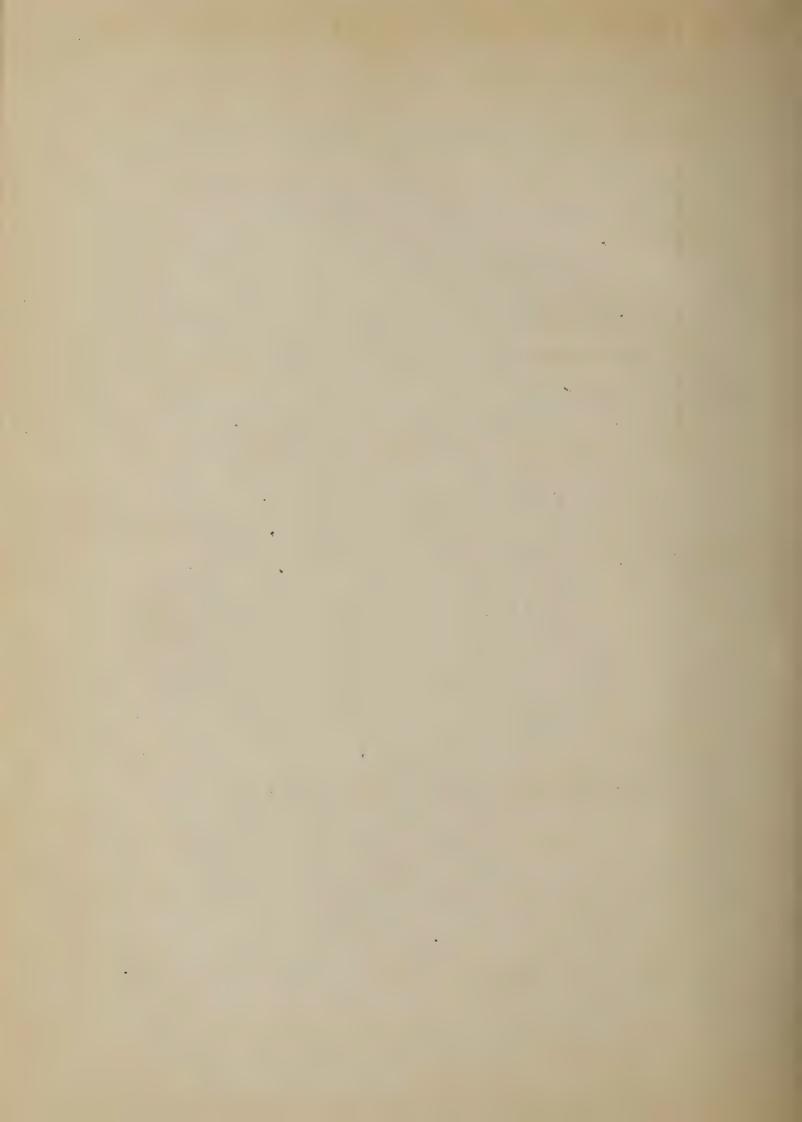
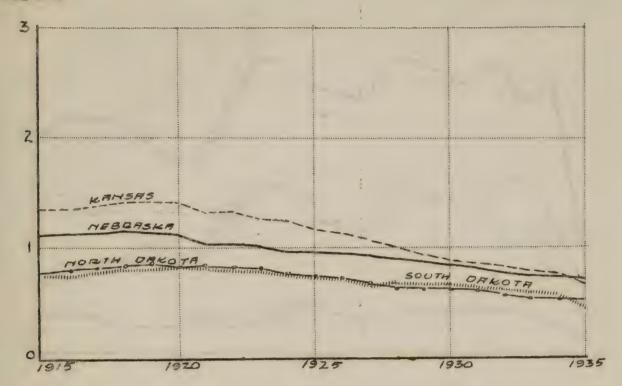


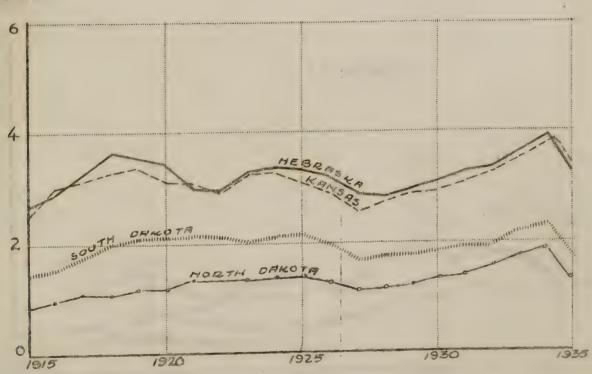
FIG. 87-TRENDIN NUMBER OF HORSES AND IMPULES RAISED, 115





## FIG. 88- TREND IN NUMBER OF CLATTLE RAISED, 1915-1935

#### MILLIONS

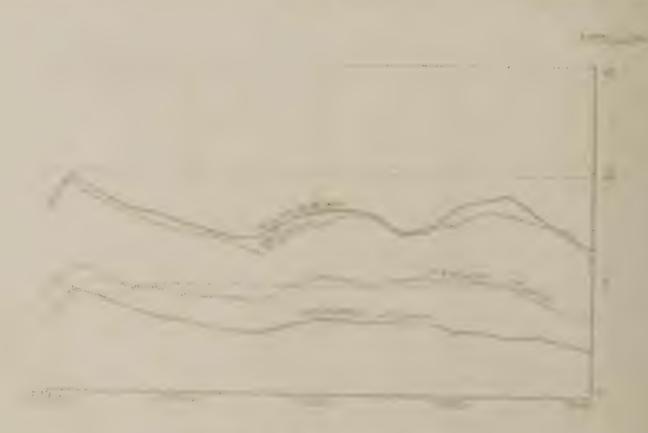


Source - Yearbook of Agriculture
United States Department of Agriculture
Resettlement Administration, Region VII, Land Utilization
Division, Land Use Planning Section.

FILE STEEL FOR THE STANDINGS PAIDED, 1



## FIG. 88-TREETING - SERIELLE DIESTT-88,019



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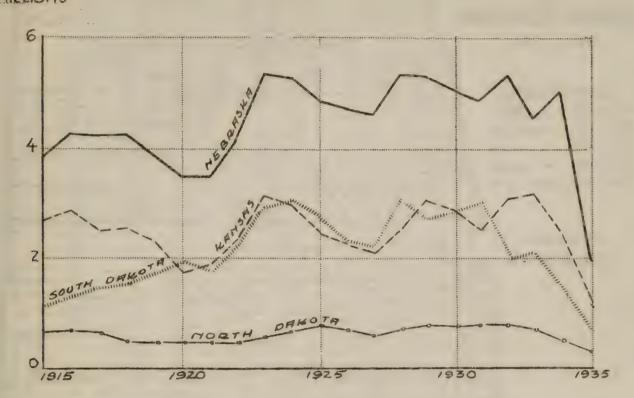
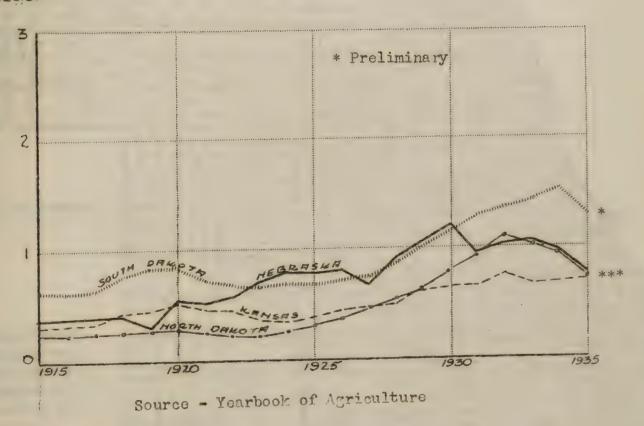


FIG. 90 - TREND IN NUMBER OF SIHEEP RAISED, 1915-1935

MILLIONS

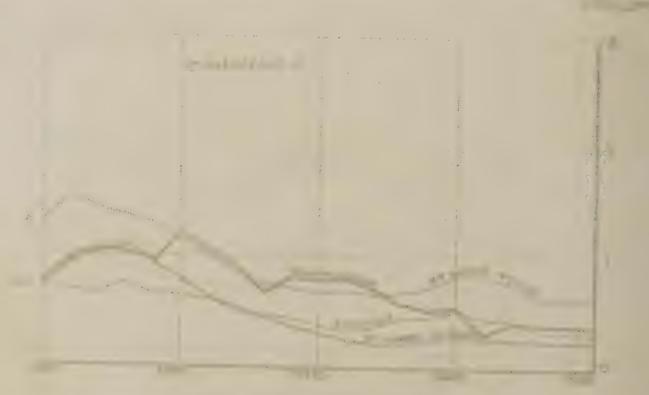


United States Department of Agriculture Resettlement Administration-Region VII, Land Utilization Division, Land Uso Planning Section

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# FIG. 30 TREHD .. NUMBER - SHEET IN ISELL ----



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